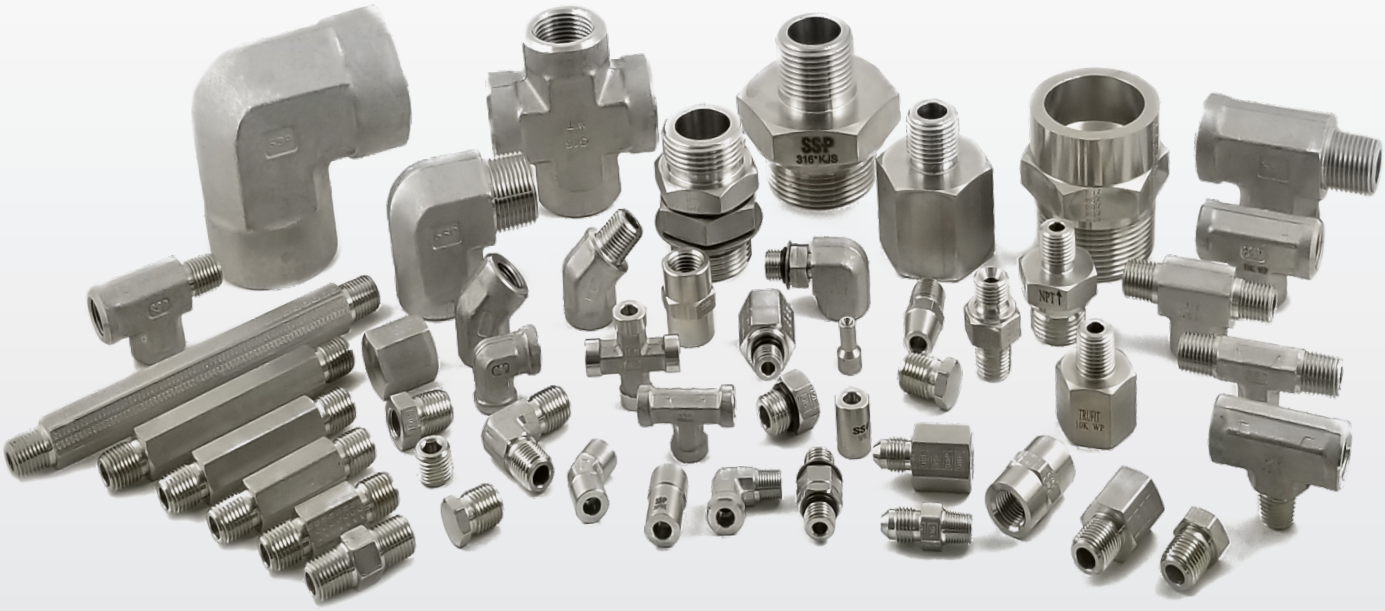
Contents

*** Each section may have a contents page for that specific section as this is a combined document.**

TruFit & TruFit 10K

SSP

Pipe, Weld, and Adapter Fittings



TruFit® & TruFit10K® Instrumentation Fittings

- ☑ 1/16 to 2 in. sizes
- ☑ NPT, BSP, and SAE threads
- ☑ Tube and Pipe Socket and Butt Weld
- ☑ 316 SS, Alloy 400, Alloy C-276, carbon steel, and brass
- ☑ AN 37° Flared

www.mySSP.com

MADE IN USA

At SSP, we are proud to be an American manufacturing success story.

100% of our products are made in America. All of our manufacturing is performed in our 165,000 sq. ft. facility located near Cleveland, Ohio. Our facility is the largest vertically integrated, single-site operation in the industry. In addition to manufacturing and assembly, we have closed die forging, tool & die design, product engineering and testing operations under the same roof with customer service and management.

Made in America is good business. Not only do we make everything in America, we use American suppliers too. Buying American allows us to have better quality control and a more reliable supply chain. We can work more closely within our walls and with our suppliers to improve quality, reduce costs, and shorten lead times, which means faster service and better products for you.

Support where it counts. SSP products and services are supported by more than 4000 people and 350 distributor locations around the globe. For a distributor near you, contact SSP Customer Service or visit www.mySSP.com/distributors.

SSP Industry Standard Products.
Made Better.

TABLE of CONTENTS

Instrumentation Pipe Fittings

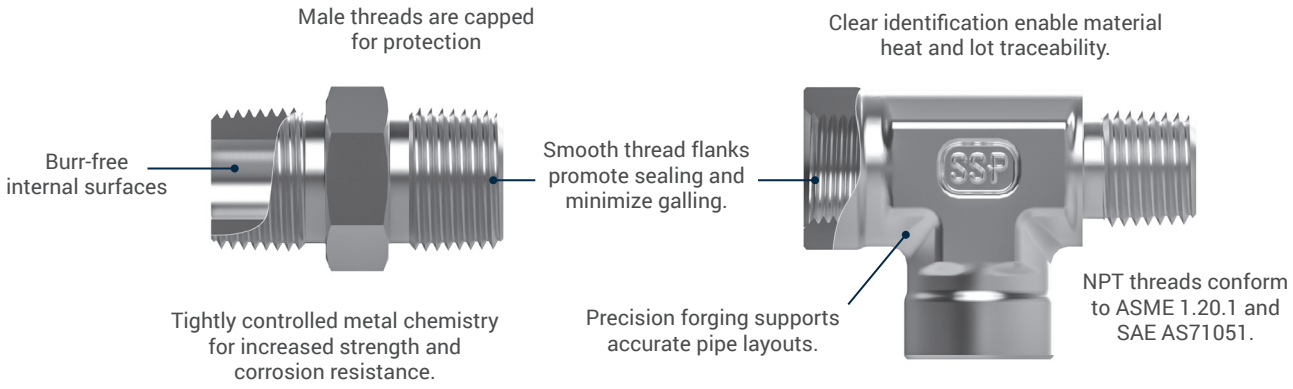
TruFit® Pipe, Weld & Adapter Fittings

SSP has been manufacturing pipe fittings for more than 75 years. TruFit instrumentation pipe fittings are manufactured with high-quality NPT, BSP, and SAE threads, AN 37° flared, and tube and pipe weld ends. Straight, elbow, tee and cross fittings can be configured with end connections from 1/16 to 2 in. TruFit pipe fittings are available in 316 stainless steel, Alloy 400, Alloy C-276 and brass. Other alloys are available on request.

TruFit10K® Fittings

SSP also offers TruFit10K fittings. Each fitting has a pressure rating of at least 10,000 psig (689 bar). They are available in 316 stainless steel in sizes from 1/16 to 1 in. NPT with BSP, SAE and AN end connections.

Product Design



Technical Information

TruFit Pipe and Weld Fitting Applications			
Parameter	**Tapered Thread**	**Straight Thread**	**Weld Ends**
Pressures (ASME 31.1)	High to 10,000 psi Static systems only	High to 10,000 psi Dynamic and Static	Very High to 15000 psig Static and Dynamic
Temperatures	Stainless: -425° to 1200°F Brass: -40 to 400°F Alloy 400: -65 to 800°F	Nitrile: -30° to 250°F FKM: -15° to 400°F Copper: -315 to 400	Stainless: -425 to 1200°F
Vibration Resistance	Fair	Very Good	Excellent
Sizes	1/16 to 2 in.	#4 to #32	1/8 to 2 in.
Dynamic Temperature/Pressure	Good in static systems Poor in dynamic systems	Excellent in static systems. Very good in dynamic systems	Excellent. Permanent joints. Highly resistant to vibration
Easy of Maintenance	Limited breaks and remakes due to metal deformation of threads	Very good. Virtually unlimited remakes. O-ring replacement only	Permanently assembled

TruFit 10K Application Information		
Parameter	**Tapered Thread**	**Straight Thread**
Pressures (ASME 31.1)	10,000 psi minimum Static systems only	10,000 psi minimum Dynamic and Static Systems
Temperature Range	Stainless: -425° to 1200°F	Nitrile: -30° to 250°F FKM: -15° to 400°F
Vibration Resistance	Fair	Very Good
Size availability	1/8 to 1 in.	#4 - #16
Dynamic Temperature/Pressure	Good in static systems Poor in dynamic systems	Excellent in static systems. Very good in dynamic systems
Maintenance	Limited breaks and remakes due to metal deformation of threads	Very good. Virtually unlimited remakes. O-ring replacement only

Thread Standards

Type	Designator	Standard
NPT (Tapered)	**–**	ASME B1.20.1
ISO/BSP (parallel) (Based on DIN 3852)	**RS**	ISO 228, JIS B0202
ISO/BSP (tapered) (Based on DIN 3852)	**RT**	ISO 7, BS EN 10226-1, JIS B0203
Unified (SAE)	**ST**	ASME B1.1

Material Standards

Material	Bar	Forging
316 SS	ASTM A276, ASME SA479, EN 1.4401	ASTM A182, ASME SA182, EN 1.4401
Alloy 400	ASTM B164	ASTM B564, ASME SB564
Alloy C-276	ASTM B574	ASTM B564
Brass	ASTM B16, ASTM B453	ASTM B283
Carbon Steel	ASTM A108	–
Alloy 20	ASTM B473	ASTM B462
Alloy 600	ASTM B166, ASME SB166	ASTM B564, ASME SB564
Alloy 625	ASTM B446	ASTM B564, ASME SB564
Alloy 825	ASTM B425	ASTM B564, ASME SB564

Pressure - Temperature Ratings

Tables 1 contains typical pressure ratings for male and female NPT and BSP tapered pipe thread ends at ambient temperature. Table 2 provides pressure ratings for SAE and BSP straight pipe thread ends. Table 4 contains derating factors for determining pressure ratings for tapered fittings at higher temperatures. Table 5 lists temperature ranges for FKM and nitrile O-ring sealed ends. For more more information about pressure ratings, contact SSP customer service.

Table 1, SSP NPT/BSPT Pipe End Pressure Ratings, ANSI/ASME B 31.3

NPT/ISO Pipe Size	Size	316 SS				Brass				Carbon Steel			
		Male		Female		Male		Female		Male		Female	
		psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
1/16"	1	11,050	760	6,750	460	5,550	380	3,350	230	11,050	760	6,750	460
1/8"	2	10,050	690	6,550	450	5,050	350	3,250	220	10,050	690	6,550	450
1/4"	4	8,050	550	6,650	460	4,050	280	3,350	230	8,050	550	6,650	460
3/8"	6	7,850	540	5,350	370	3,950	270	2,650	180	7,850	540	5,350	370
1/2"	8	7,750	530	4,950	340	3,850	260	2,450	170	7,750	530	4,950	340
3/4"	12	7,350	510	4,650	320	3,650	250	2,350	160	7,350	510	4,650	320
1"	16	5,350	370	4,450	310	2,650	180	2,250	150	5,350	370	4,450	310
Reference: MPa = 0.10 x psig				*To obtain ANSI/ASME B 31.1 values, multiply ANSI/ASME B 31.3 values by .94.*									

Table 2, Parallel Threads, SAE/BSPP, 316 SS

	Male		Female	
Size	psig	bar	psig	bar
1/8	6,000	413	5,400	380
1/4	6,000	413	5,400	373
3/8	6,000	413	5,400	373
1/2	6,000	413	4,800	331
3/4	4,800	331	4,200	290
1	3,600	248	2,400	166
1 1/4	3,000	206	2,000	138
1 1/2	2,400	166	1,800	124
2	1,800	124	1,500	104

Table 3, Material Allowable Stress Values

Material	Value
316 SS	20,000 psi (1378 bar)
Brass	10,000 psi (689 bar)
Carbon Steel	20,000 psi (1378 bar)

Temperature Ratings

To determine the maximum allowable working pressure for the piping systems at elevated temperatures, multiply the applicable maximum allowable working pressure by the corresponding temperature stress factor from Table 4. System temperatures may be limited by the thread sealant or when applicable, the gasket or O-ring materials. See Table 6 for O-ring materials temperature ratings.

Table 4, Stress Factors for Determining Pressure Ratings at Elevated Temperatures Ratings, ANSI/ASME B 31.3

Temperature		Stainless Steel		Carbon Steel	Copper	Alloy 400
°F	°C	304SS	316SS			
100	38	1.00	1.00	1.00	1.00	1.00
200	93	1.00	1.00	0.96	0.80	0.88
300	149	1.00	1.00	0.90[1]	0.78	0.82
400	204	0.94	0.97	0.86[1]	0.50	0.79
500	260	0.88	0.90	-	-	0.79
600	316	0.82	0.85	-	-	0.79
700	371	0.80	0.82	-	-	0.79
800	427	0.76	0.80	-	-	0.76
900	482	0.73	0.78	-	-	0.43
1000	538	0.69	0.73	-	-	-
1200	649	0.30	0.37	-	-	-

[1]Temperature limitation of Zinc coating (375°F) used on carbon steel fittings.

Table 5, Temperature Ratings

Material	Max. Temperature
316 SS	1,200 (649)
Brass	400 (204)
Carbon Steel	375 (190)

Table 6, O-Ring Materials Temperature Ratings

Material	Temperature Range °F (°C)
FKM	-15 to 400 (-26 to 204)
Nitrile	-30 to 250 (-34 to 121)

Safety

Important

To help ensure the safe and reliable performance of TruFit products, complete system design must be considered prior to installation of the pipe, tubing and fittings. **Determining the design compatibility of materials, media, flow, temperatures and pressures; as well as implementing proper installation, operation and maintenance of the system are the responsibilities of the systems' owner, designers and users.**

Safety Reminders

All SSP products are designed and manufactured with safety in mind. The following is a limited list of general safety tips as reminders for good safety practices:

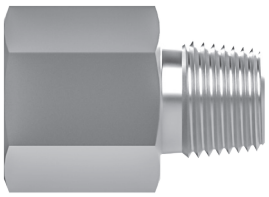
- Do not install, tighten or loosen a fitting or adapter while the system is under pressure.
- Do not loosen a fitting, nut or plug to relieve or bleed pressure.
- Always use a back-up wrench to hold the pipe or pipe fitting body steady when tightening or loosening.
- Use proper thread lubricants and sealants on tapered pipe fittings.
- Tube fitting end connection and tubing material should be similar (stainless steel fittings on stainless steel pipe, brass fittings on copper tubing, with the tubing materials being fully annealed).
- Do not weld tube fittings that are assembled. Prior to welding, remove all components, nuts, ferrules, and seals. Protect the sealing and thread areas of the tube fitting by covering with a plug or another nut.

How to Order

The Trufit Pipe Fittings Catalog contains part numbers for the most common fitting types and sizes. Other configurations are available. To request other configurations, use the guides on pages 7 and 8 to build a part number or contact SSP customer service.

NPT Thread

Material	*Brand*	*1st End Size*	*Fitting Type*	*2nd End Size*	*Options*
ISS	*T*	*4*	*RA*	*2*	*-10K*



Material	
Designator	**Material**
IB	Brass
ISS	316 Stainless Steel
IS	Carbon Steel
IM	Alloy 400/R405
IHC	Alloy C-276

Nominal End Connection Size	
Designator	**Size**
1	1/16
2	1/8
4	1/4
6	3/8
8	1/2
12	3/4
16	1
20	1 1/4
24	1 1/2
32	2

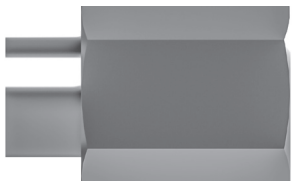
Fitting Type			
Designator	**Description**	**Designator**	**Description**
A	Adapter	**ME**	Male Elbow
BT	Branch Tee	**MT**	Male Tee
CN	Close Nipple	**PCP**	Pipe Cap
E	Female Elbow	**PP**	Pipe Plug
E45	45° Female Elbow	**PT**	Pipe Tee
HCG	Hex Coupling	**RA**	Reducer/Adapter
HCRG	Hex Reducing Coupling	**RB**	Reducing Bushing
HHP	Hollow Hex Plug	**SE**	Street Elbow
HLN	Hex Long Nipple	**RSE**	Reducing Street Elbow
HN	Hex Nipple	**SE45**	45° Street Elbow
HRN	Hex Reducing Nipple	**ST**	Street Tee
MD	Mud Dauber (Vent Protector)		

Options	
Designator	**Option**
-10K	10K Fittings
-XP98	Per ASTM G93 Level C
-XP97	No Lube

How to Order

Weld & Braze Fittings

Tube Weld, Pipe Weld Fittings and Adapters



Material	*Brand*	*1st End Size*	*1st Fitting Type*	*2nd End Size*	*Options*
ISS	*T*	*6*	*TSFC*	*4*	

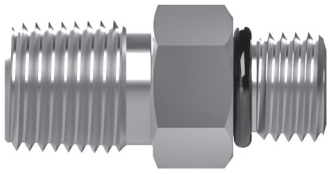
Nominal Size	
Designator	**Size**
2	1/8
3	3/16
4	1/4
5	5/16
6	3/8
8	1/2
10	5/8
12	3/4
16	1
20	1 1/4
24	1 1/2
32	2

Material	
Designator	**Material**
ISS	316 Stainless Steel
IM	Alloy 400
IHC	Alloy C-276

Fitting Type	
Part	**Description**
MPTS	Male Pipe Weld x Tube Socket Weld
MTTS	Male Tube Weld x Tube Socket Weld
TSFC	Tube Socket Female Connector
TSFE	Tube Socket Female Elbow
TSMC	Tube Socket Male Connector
TSME	Tube Socket Male Elbow
TSU	Tube Socket Union
TSUC	Tube Socket Union Cross
TSUE	Tube Socket Union Elbow
TSUT	Tube Socket Union Tee
TSWU	Tube Socket Weld Union

All Other Fittings

SAE, BSPP, BSPT, and AN 37° Fittings and Adapters



Material	*Brand*	*1st End Size*	*1st End Type*	*2nd End Size*	*2nd End Type*	*Options*
ISS	*T*	*4*	*MST*	*2*	*MC*	*-10K*

Material	
Designator	**Material**
IB	Brass
ISS	316 Stainless Steel
IM	Alloy 400/R405
IHC	Alloy C-276

Options	
Designator	**Option**
-10K	10K Fittings
-BN	Nitrile O-ring
-V	FKM O-rings
-XP98	Clean Per ASTM G93 Level C
-XP97	No Lube

Nominal Size		
Designator	**Size**	**SAE Thread**
2	1/8	5/16-24
3	3/16	3/8-24
4	1/4	7/16-20
5	5/16	1/2-20
6	3/8	9/16-18
8	1/2	3/4-16
10	5/8	7/8-14
12	3/4	1 1/16-12
16	1	1 5/16-12
20	1 1/4	1 5/8-12
24	1 1/2	1 7/8-12
32	2	2 1/2-12

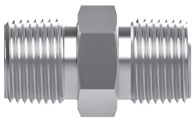
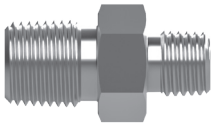
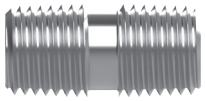
Fitting Type	
Part	**Description**
AN	37° Male AN
ANF	37° Female AN
CGP	Countersunk SAE Plug
FC	Female Connector
FST	Female SAE
GP	SAE Plug
ME	Male Elbow
MRS	Male BSPP
MRT	Male BSPT
MST	Male SAE

Selection Guide

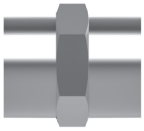
Our selection guide makes it easy to locate any fitting.
Simply turn to the page designated in the lower right-hand corner.

NPT Tapered Thread

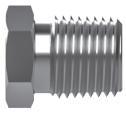
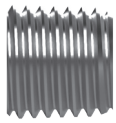
Nipples

Hex Nipple	Hex Reducing Nipple	Hex Long Nipple	Close Nipple
			
HN 12	*HRN* 12	*HLN* 13	*CN* 13

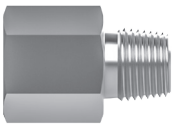
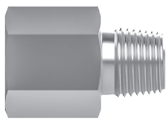
Couplings

Hex Coupling	Hex Reducing Coupling
	
HCG 14	*HRCG* 14

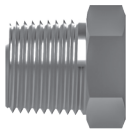
Cap & Plugs

Pipe Cap	Pipe Plug	Hollow Hex Plug
		
PCP 15	*PP* 15	*HHP* 16

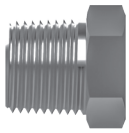
Adapters

Adapter	Reducing Adapter
	
A 16	*RA* 17

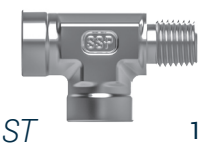
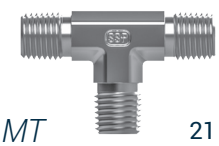
Vent Protector

Mud Dauber

MD 17

Bushing

Reducing Bushing

RB 18

Tee

Pipe Tee	Street Tee	Branch Tee	Male Tee
			
PT 19	*ST* 19	*BT* 20	*MT* 21

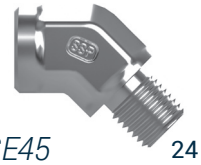
Cross

Pipe Cross

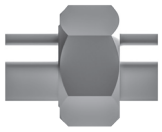
PCS 21

Elbow

Elbow	45° Elbow	Male Elbow
		
E 21	*E45* 22	*ME* 23

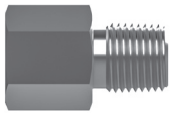
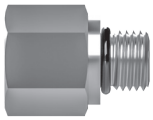
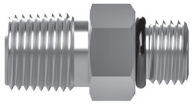
Street Elbow	Reducing Street Elbow	45° Street Elbow
		
SE 23	*RSE* 23	*SE45* 24

Union Ball Joint

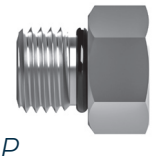
Female Pipe Union

KUT 24

SAE Parallel Thread

Fittings & Adapters

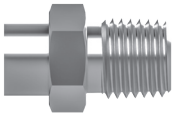
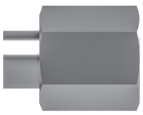
Female SAE x Male NPT	Female SAE x Male SAE	Male SAE x Male NPT	Male SAE x Male SAE
			
FST-MC 25	*FST-MST* 25	*MC-MST* 26	*MST* 26

PLUGS

Plug, SAE	Plug, SAE Countersunk
	
GP 27	*CGP* 27

Weld & Braze

Tube to Pipe

Tube Socket Weld Male Connector	Tube Socket Weld Female Connector	Tube Sock Weld Male Elbow	Tube Socket Weld Female Elbow
			
TSMC 32	TSFC 28	TSME 29	TSFE 29

Tube to Tube Union

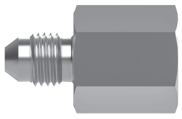
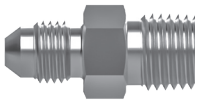
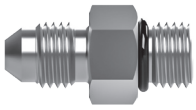
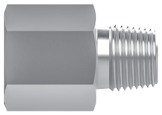
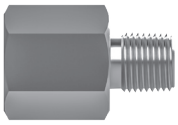
Tube Socket Weld Union	Tube Socket Weld Union Elbow	Tube Socket Weld Union Tee	Tube Socket Weld Union Cross
			
TSU 30	TSUE 30	TSUT 31	TSUC 31

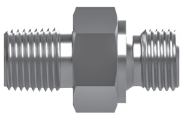
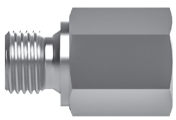
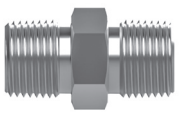
Weld Adapters

Male Tube Weld x Tube Socket Weld	Male Pipe Weld X Tube Socke Weld
	
MTTS 32	MPTS 32

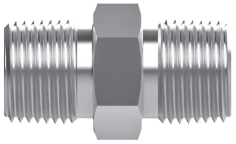
ISO/BSP Thread & AN Adapter

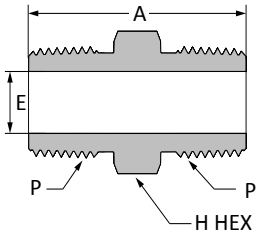
Adapters

37° AN X Female NPT	37° AN X Male NPT	37° AN X Male SAE	Female NPT X Male ISO Tapered	Female ISO Straight X Male NPT Tapered
				
AN-FC 33	AN-MC 34	AN-MST 35	FC-MRT 36	FRS-MC 36

Male NPT x Male ISO Straight	Female NPT x Male ISO Straight	Male NPT x Male ISO Tapered	Bonded Washer	O-Ring
				
MC-MRS 37	FC-MRS 37	MC-MRT 38	DW-BSPP 38	R 38

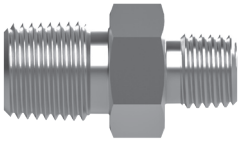
HN: *Hex Nipple*

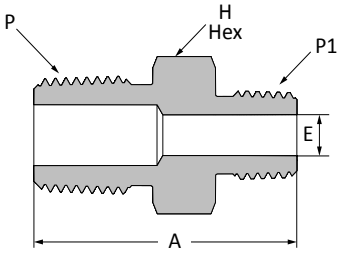




Part #	P Male NPT Size	A	E Minimum Opening	H Hex Flat	316 SS Working Pressure	Brass Working Pressure
T1HN	1/16	1.01	0.12	5/16	11,300	5,550
T2HN	1/8	1.06	0.18	7/16	10,100	5,050
T4HN	1/4	1.45	0.28	5/8	8,300	4,050
T6HN	3/8	1.45	0.40	3/4	7,850	3,950
T8HN	1/2	1.89	0.53	7/8	7,750	3,850
T12HN	3/4	1.96	0.71	1 1/8	7,350	3,650
T16HN	1	2.34	0.93	1 3/8	5,500	2,650
T20HN	1 1/4	2.48	1.25	1 3/4	6,200	-
T24HN	1 1/2	2.61	1.5	2	5,100	-
T32HN	2	2.82	1.93	2 1/2	4,000	-
TruFit 10K						
T2HN-10K	1/8	1.06	0.18	7/16	10,000	-
T4HN-10K	1/4	1.45	0.25	5/8	10,000	-
T6HN-10K	3/8	1.45	0.33	3/4	10,000	-
T8HN-10K	1/2	1.89	0.41	7/8	10,000	-
T12HN-10K	3/4	1.96	0.53	1-1/8	10,000	-
T16HN-10K	1	2.34	0.67	1-3/8	10,000	-
T32HN-10K	2	2.82	1.28	2-1/2	10,000	-

HRN *Hex Reducing Nipple*

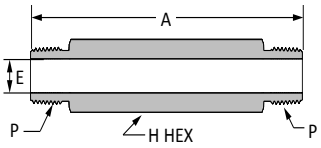




Part #	P Male NPT Size	P1 Male NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T2HRN1	1/8	1/16	1.03	0.11	7/16	10,100	5,050
T4HRN2	1/4	1/8	1.26	0.19	5/8	8,300	4,050
T6HRN2	3/8	1/8	1.26	0.19	3/4	7,850	3,950
T6HRN4	3/8	1/4	1.45	0.28	3/4	7,850	3,950
T8HRN2	1/2	1/8	1.51	0.19	7/8	7,750	3,850
T8HRN4	1/2	1/4	1.70	0.28	7/8	7,750	3,850
T8HRN6	1/2	3/8	1.70	0.40	7/8	7,750	3,850
T12HRN4	3/4	1/4	1.77	0.28	1 1/8	7,350	3,650
T12HRN8	3/4	1/2	1.96	0.53	1 1/8	7,350	3,650
T16HRN8	1	1/2	2.15	0.53	1 3/8	5,500	2,650
T16HRN12	1	3/4	2.15	0.71	1 3/8	5,500	2,650
T20HRN16	1 1/4	1	2.45	0.93	1 3/4	5,500	-
T24HRN16	1 1/2	1	2.55	0.93	2	5,100	-
TruFit 10K							
T4HRN2-10K	1/4	1/8	1.26	0.19	5/8	10,000	-
T6HRN2-10K	3/8	1/8	1.26	0.19	3/4	10,000	-
T6HRN4-10K	3/8	1/4	1.45	0.25	3/4	10,000	-
T8HRN2-10K	1/2	1/8	1.51	0.19	7/8	10,000	-
T8HRN4-10K	1/2	1/4	1.70	0.25	7/8	10,000	-
T8HRN6-10K	1/2	3/8	1.70	0.33	7/8	10,000	-
T12HRN4-10K	3/4	1/4	1.77	0.25	1-1/8	10,000	-
T12HRN6-10K	3/4	3/8	1.77	0.33	1-1/8	10,000	-
T12HRN8-10K	3/4	1/2	1.96	0.41	1-1/8	10,000	-
T16HRN4-10K	1	1/4	1.96	0.25	1-3/8	10,000	-
T16HRN6-10K	1	3/8	1.96	0.33	1-3/8	10,000	-
T16HRN8-10K	1	1/2	2.15	0.41	1-3/8	10,000	-
T16HRN12-10K	1	3/4	2.15	0.53	1-3/8	10,000	-

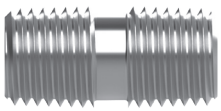
Dimensions are for reference only and are subject to change.

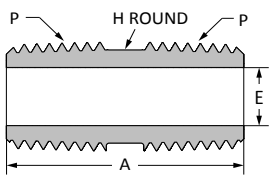
HLN
Hex Long Nipple



Part #	P Male NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T2HLN1.5	1/8	1.50	0.19	7/16	10,100	5,050
T2HLN2.0	1/8	2.00	0.19	7/16	10,100	5,050
T2HLN2.5	1/8	2.50	0.19	7/16	10,100	5,050
T2HLN3.0	1/8	3.00	0.19	7/16	10,100	5,050
T4HLN1.5	1/4	1.50	0.28	5/8	8,300	4,050
T4HLN2.0	1/4	2.00	0.28	5/8	8,300	4,050
T4HLN2.5	1/4	2.50	0.28	5/8	8,300	4,050
T4HLN3.0	1/4	3.00	0.28	5/8	8,300	4,050
T4HLN4.0	1/4	4.00	0.28	5/8	8,300	4,050
T6HLN1.5	3/8	1.50	0.40	3/4	7,850	3,950
T6HLN2.0	3/8	2.00	0.40	3/4	7,850	3,950
T6HLN2.5	3/8	2.50	0.40	3/4	7,850	3,950
T6HLN3.0	3/8	3.00	0.40	3/4	7,850	3,950
T8HLN2.0	1/2	2.00	0.53	7/8	7,750	3,850
T8HLN3.0	1/2	3.00	0.53	7/8	7,750	3,850
T8HLN4.0	1/2	4.00	0.53	7/8	7,750	3,850
T12HLN2.0	3/4	2.00	0.71	1 1/8	7,350	3,650
T12HLN3.0	3/4	3.00	0.71	1 1/8	7,350	3,650
T12HLN4.0	3/4	4.00	0.72	1 1/16	7,350	3,650
T16HLN3.0	1	3.00	0.93	1 3/8	5,500	2,650
T16HLN4.0	1	4.00	0.93	1 3/8	5,500	2,650
TruFit 10K						
T2HLN3.0-10K	1/8	3.00	0.19	7/16	10,000	-
T4HLN2.0-10K	1/4	2.00	0.25	5/8	10,000	-
T4HLN3.0-10K	1/4	3.00	0.25	5/8	10,000	-
T4HLN4.0-10K	1/4	4.00	0.25	5/8	10,000	-
T4HLN6.0-10K	1/4	6.00	0.25	5/8	10,000	-
T6HLN3.0-10K	3/8	3.00	0.33	3/4	10,000	-
T6HLN4.0-10K	3/8	4.00	0.33	3/4	10,000	-
T6HLN6.0-10K	3/8	6.00	0.33	3/4	10,000	-
T8HLN1.5-10K	1/2	1.50	0.41	7/8	10,000	-
T8HLN1.75-10K	1/2	1.75	0.41	7/8	10,000	-
T8HLN3.0-10K	1/2	3.00	0.41	7/8	10,000	-
T8HLN4.0-10K	1/2	4.00	0.41	7/8	10,000	-
T8HLN6.0-10K	1/2	6.00	0.41	7/8	10,000	-

CN
Close Nipple

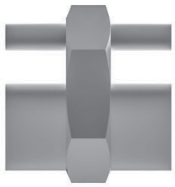


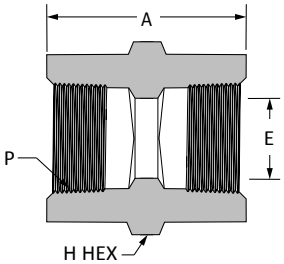


PART #	P Male NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T2CN	1/8	0.75	0.16	7/16	10,100	5,050
T4CN	1/4	1.13	0.25	9/16	8,300	4,050
T6CN	3/8	1.13	0.34	11/16	7,850	3,950
T8CN	1/2	1.50	0.42	7/8	7,750	3,850
T12CN	3/4	1.50	0.57	1 1/16	7,350	3,650
T16CN	1	1.88	0.84	1 3/8	5,500	2,650

Dimensions are for reference only and are subject to change.

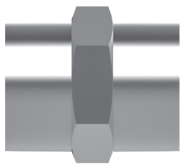
HCG: Hex Coupling

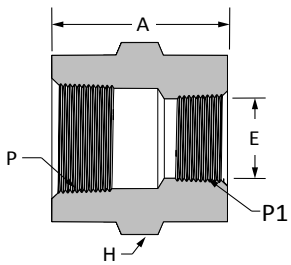




TruFit Part #	P Female NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T2HCG	1/8	0.75	0.34	5/8	9,250	3,250
T4HCG	1/4	1.13	0.45	3/4	7,750	3,350
T6HCG	3/8	1.13	0.59	7/8	6,800	2,650
T8HCG	1/2	1.50	0.73	1 1/8	5,950	2,450
T12HCG	3/4	1.53	0.94	1 3/8	5,600	2,350
T16HCG	1	1.89	1.17	1 5/8	5,250	2,250
T20HCG	1 1/4	1.93	1.68	2	6,350	-
T24HCG	1 1/2	1.93	1.92	2 3/8	5,600	-
T32HCG	2	1.96	2.39	2 7/8	4,650	-
TruFit 10K						
T2HCG-10K	1/8	0.75	0.33	5/8	10,000	-
T4HCG-10K	1/4	1.13	0.42	13/16	10,000	-
T6HCG-10K	3/8	1.13	0.56	1"	10,000	-
T8HCG-10K	1/2	1.50	0.69	1-1/4	10,000	-
T12HCG-10K	3/4	1.53	0.89	1-1/2	10,000	-
T16HCG-10K	1	1.89	1.13	1-7/8	10,000	-

HRCG: Hex Reducing Coupling

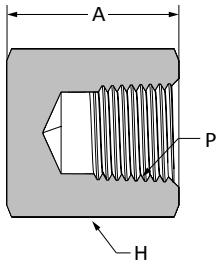




TruFit Part #	P Female NPT Size	P1 Female NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T4HRCG2	1/4	1/8	1.13	0.43	3/4	7,750	3,250
T6HRCG4	3/8	1/4	1.13	0.56	7/8	6,800	2,650
T8HRCG2	1/2	1/8	1.50	0.43	1 1/8	5,950	2,450
T8HRCG4	1/2	1/4	1.50	0.56	1 1/8	5,950	2,450
T8HRCG6	1/2	3/8	1.50	0.70	1 1/8	5,950	2,450
T12HRCG4	3/4	1/4	1.75	0.56	1 3/8	5,600	2,350
T12HRCG8	3/4	1/2	1.88	0.86	1 3/8	5,600	2,350
T16HRCG8	1	1/2	1.89	0.86	1 5/8	5,250	2,250
T16HRCG12	1	3/4	1.89	1.07	1 5/8	5,250	2,250
TruFit 10K							
T4HRCG2-10K	1/4	1/8	1.13	0.33	13/16	10,000	-
T6HRCG2-10K	3/8	1/8	1.13	0.33	1"	10,000	-
T6HRCG4-10K	3/8	1/4	1.13	0.42	1"	10,000	-
T8HRCG2-10K	1/2	1/8	1.50	0.33	1-1/4	10,000	-
T8HRCG4-10K	1/2	1/4	1.50	0.42	1-1/4	10,000	-
T8HRCG6-10K	1/2	3/8	1.50	0.56	1-1/4	10,000	-
T12HRCG4-10K	3/4	1/4	1.75	0.42	1-1/2	10,000	-
T12HRCG6-10K	3/4	3/8	1.75	0.56	1-1/2	10,000	--
T12HRCG8-10K	3/4	1/2	1.88	0.69	1-1/2	10,000	-
T16HRCG8-10K	1	1/2	1.89	0.69	1-7/8	10,000	-
T16HRCG12-10K	1	3/4	1.89	0.89	1-7/8	10,000	-

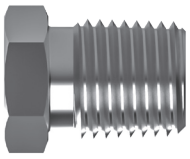
Dimensions are for reference only and are subject to change.

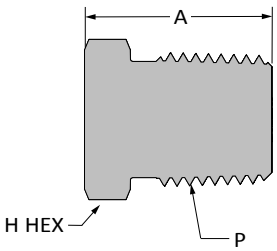
PCP: *Pipe Cap*



TruFit Part #	P Female NPT Size	A	H	316 SS Working Pressure	Brass Working Pressure
T2PCP	1/8	0.53	5/8	9,250	3,250
T4PCP	1/4	0.91	3/4	7,750	3,350
T6PCP	3/8	1.03	7/8	6,800	2,650
T8PCP	1/2	1.34	1 1/8	5,950	2,450
T12PCP	3/4	1.44	1 3/8	5,600	2,350
T16PCP	1	1.62	1 5/8	5,250	2,250
TruFit 10K					
T2PCP-10K	1/8	0.53	5/8	10,000	-
T4PCP-10K	1/4	0.91	13/16	10,000	-
T6PCP-10K	3/8	1.03	1	10,000	-
T8PCP-10K	1/2	1.34	1-1/4	10,000	-
T12PCP-10K	3/4	1.43	1-1/2	10,000	-
T16PCP-10K	1	1.63	1-7/8	10,000	-

PP: *Pipe Plug*

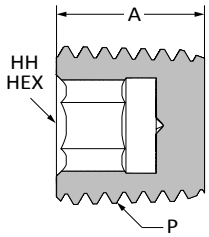




TruFit Part #	P Male NPT Size	A	H	316 SS Working Pressure	Brass Working Pressure
T1PP	1/16	0.53	3/8	11,300	5,550
T2PP	1/8	0.56	7/16	10,100	5,050
T4PP	1/4	0.74	9/16	8,300	4,050
T6PP	3/8	0.78	11/16	7,850	3,950
T8PP	1/2	0.97	7/8	7,750	3,850
T12PP	3/4	1.10	1 1/16	7,350	3,650
T16PP	1	1.24	1 5/16	5,500	2,650
T20PP	1 1/4	1.44	1 3/4	6,200	-
T24PP	1 1/2	1.50	2	5,100	-
T32PP	2	1.62	2 1/2	4,000	-
TruFit 10K					
T2PP-10K	1/8	0.56	7/16	10,000	-
T4PP-10K	1/4	0.74	9/16	10,000	-
T6PP-10K	3/8	0.78	11/16	10,000	-
T8PP-10K	1/2	0.97	7/8	10,000	-
T12PP-10K	3/4	1.10	1-1/16	10,000	-
T16PP-10K	1	1.24	1-5/16	10,000	-

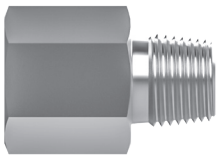
Dimensions are for reference only and are subject to change.

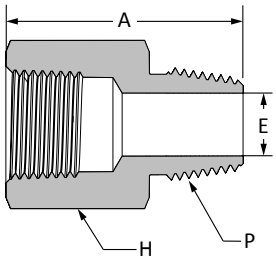
HHP: *Hollow Hex Plug*



TruFit Part #	P Male NPT Size	A	HH	316 SS Working Pressure	Brass Working Pressure
T2HHP	1/8	0.30	3/16	10,100	5,050
T4HHP	1/4	0.46	1/4	8,300	4,050
T6HHP	3/8	0.46	5/16	7,850	3,950
T8HHP	1/2	0.54	3/8	7,750	-
T12HHP	3/4	0.55	9/16	7,350	-
T16HHP	1	0.69	5/8	5,500	-

A: *Adapter*

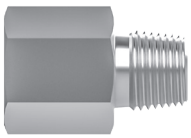


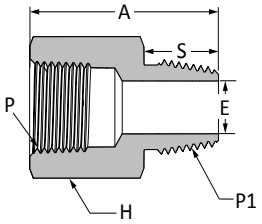


TruFit Part #	P Male & Female NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T2A	1/8	1.04	0.21	9/16	9,250	3,250
T4A	1/4	1.39	0.28	3/4	7,750	3,350
T6A	3/8	1.44	0.40	7/8	6,800	2,650
T8A	1/2	1.87	0.50	1 1/16	5,950	2,450
T12A	3/4	1.93	0.53	1 1/8	5,600	2,350
T16A	1	2.37	0.72	1 3/8	5,250	2,250
TruFit 10K						
T4A-10K	1/4	1.39	0.25	13/16	10,000	-
T6A-10K	3/8	1.44	0.33	1	10,000	-
T8A-10K	1/2	1.87	0.41	1-1/4	10,000	-
T12A-10K	3/4	1.93	0.53	1-1/2	10,000	-
T16A-10K	1	2.37	0.67	1-7/8	10,000	-

Dimensions are for reference only and are subject to change.

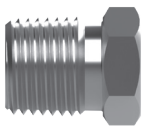
RA: *Reducing Adapter*

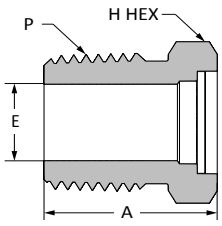




TruFit Part #	P Female NPT Size	P1 Male NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T2RA1	1/8	1/1 6	1.09	0.15	9/16	9,250	3,250
T4RA2	1/4	1/8	1.21	0.19	3/4	7,750	3,350
T6RA2	3/8	1/8	1.25	0.19	7/8	6,800	2,650
T6RA4	3/8	1/4	1.44	0.28	7/8	6,800	2,650
T8RA2	1/2	1/8	1.50	0.19	1 1/8	5,950	2,450
T8RA4	1/2	1/4	1.68	0.28	1 1/8	5,950	2,450
T8RA6	1/2	3/8	1.68	0.41	1 1/8	5,950	2,450
T12RA4	3/4	1/4	1.78	0.28	1 3/8	5,600	2,350
T12RA6	3/4	3/8	1.78	0.40	1 3/8	5,600	2,350
T12RA8	3/4	1/2	1.93	0.53	1 3/8	5,600	2,350
T16RA4	1	1/4	2.00	0.28	1 5/8	5,250	2,250
T16RA8	1	1/2	2.18	0.53	1 5/8	5,250	2,250
T16RA12	1	3/4	2.18	0.72	1 5/8	5,250	2,250
T20RA16	1 1/4	1	2.46	0.93	2	5,500	-
T24RA16	1 1/2	1	2.47	0.93	2 3/8	5,500	-
TruFit 10K							
T4RA2-10K	1/4	1/8	1.21	0.19	13/16	10,000	-
T6RA2-10K	3/8	1/8	1.25	0.19	1	10,000	-
T6RA4-10K	3/8	1/4	1.44	0.25	1	10,000	-
T8RA2-10K	1/2	1/8	1.50	0.19	1-1/4	10,000	-
T8RA4-10K	1/2	1/4	1.68	0.25	1-1/4	10,000	-
T8RA6-10K	1/2	3/8	1.68	0.33	1-1/4	10,000	-
T12RA4-10K	3/4	1/4	1.78	0.25	1-1/2	10,000	-
T12RA6-10K	3/4	3/8	1.78	0.33	1-1/2	10,000	-
T12RA8-10K	3/4	1/2	1.93	0.41	1-1/2	10,000	-
T16RA8-10K	1	1/2	2.18	0.41	1-7/8	10,000	-
T16RA12-10K	1	3/4	2.18	0.53	1-7/8	10,000	-

MD: *Mud Dauber*

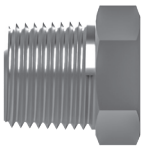


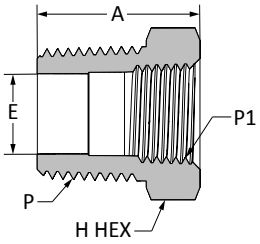


TruFit Part#	Male Pipe P-NPT	A	E	H
T2MD	1/8	0.56	0.19	9/16
T4MD	1/4	0.75	0.28	9/16
T6MD	3/8	0.78	0.37	11/16
T8MD	1/2	0.96	0.46	7/8
T12MD	3/4	1.10	0.63	1 1/16

Dimensions are for reference only and are subject to change.

RB: Reducing Bushing

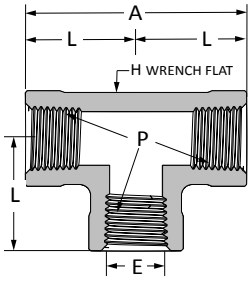




TruFit Part #	P Male NPT Size	P1 Female NPT Size	A	E Minimum Opening	H	316 SS Working Pressure	Brass Working Pressure
T2RB1	1/8	1/16	0.63	0.19	7/16	9,600	3,350
T4RB2	1/4	1/8	0.85	0.28	5/8	8,300	3,250
T6RB2	3/8	1/8	0.85	0.34	3/4	7,850	3,250
T6RB4	3/8	1/4	0.85	0.40	3/4	7,750	3,350
T8RB2	1/2	1/8	1.09	0.34	7/8	7,750	3,250
T8RB4	1/2	1/4	1.09	0.43	7/8	7,750	3,350
T8RB6	1/2	3/8	1.10	0.53	7/8	6,800	2,650
T12RB4	3/4	1/4	1.17	0.56	1 1/8	7,350	3,350
T12RB6	3/4	3/8	1.17	0.57	1 1/8	6,800	2,650
T12RB8	3/4	1/2	1.17	0.70	1 1/8	5,950	2,450
T16RB4	1	1/4	1.36	0.44	1 3/8	5,500	2,650
T16RB6	1	3/8	1.36	0.58	1 3/8	5,500	2,650
T16RB8	1	1/2	1.36	0.70	1 3/8	5,500	2,450
T16RB12	1	3/4	1.36	0.92	1 3/8	5,500	2,350
T20RB16	1 1/4	1	1.47	1.15	1 3/4	5,250	-
T24RB16	1 1/2	1	1.57	1.15	2	5,100	-
T24RB20	1 1/2	1 1/4	1.57	1.50	2	5,100	-
T32RB16	2	1	1.75	1.50	2 1/2	4,000	-
T32RB20	2	1 1/4	1.75	1.50	2 1/2	4,000	-
T32RB24	2	1 1/2	1.75	1.70	2 1/2	4,000	-
TruFit 10K							
T4RB2-10K	1/4	1/8	1.15	0.24	5/8	10,000	-
T6RB4-10K	3/8	1/4	1.38	0.32	13/16	10,000	-
T8RB2-10K	1/2	1/8	1.09	0.24	7/8	10,000	-
T8RB4-10K	1/2	1/4	1.53	0.38	7/8	10,000	-
T8RB6-10K	1/2	3/8	1.62	0.38	1"	10,000	-
T12RB4-10K	3/4	1/4	1.17	0.42	1-1/8	10,000	-
T12RB6-10K	3/4	3/8	1.59	0.50	1-1/8	10,000	-
T12RB8-10K	3/4	1/2	1.85	0.51	1-1/4	10,000	-
T16RB4-10K	1"	1/4	1.36	0.42	1-3/8	10,000	-
T16RB6-10K	1"	3/8	1.36	0.56	1-3/8	10,000	-
T16RB8-10K	1"	1/2	1.97	0.62	1-3/8	10,000	-
T16RB12-10K	1"	3/4	2.10	0.67	1-1/2	10,000	-
T32RB8-10K	2"	1/2	1.75	0.68	2-1/2	10,000	-

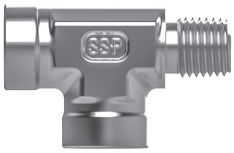
Dimensions are for reference only and are subject to change.

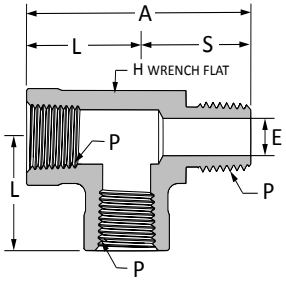
PT: Pipe Tee



TruFit Part #	P Female NPT Size	A	E Minimum Opening	H	L	316 SS Working Pressure	Brass Working Pressure
T2PT	1/8	1.32	0.34	9/16	0.66	9,250	3,250
T4PT	1/4	1.76	0.45	3/4	0.88	7,750	3,350
T6PT	3/8	2.04	0.59	7/8	1.02	6,800	2,650
T8PT	1/2	2.46	0.73	1 1/16	1.23	5,950	2,450
T12PT	3/4	2.72	0.94	1 5/16	1.36	5,600	2,350
T16PT	1	3.24	1.17	1 5/8	1.62	5,250	2,250
T20PT	1 1/4	3.40	1.68	2	1.70	6,350	-
T24PT	1 1/2	4.16	1.92	2 3/8	2.08	5,600	-
T32PT	2	4.78	2.31	2 7/8	2.39	4,650	-
TruFit 10K							
T2PT-10K	1/8	33.5	8.3	13/16	0.66	10,000	-
T4PT-10K	1/4	44.7	10.6	3/4	0.88	10,000	-
T6PT-10K	3/8	51.8	14.2	1-1/16	1.02	10,000	-
T8PT-10K	1/2	62.4	17.5	1-5/16	1.23	10,000	-

ST: Street Tee

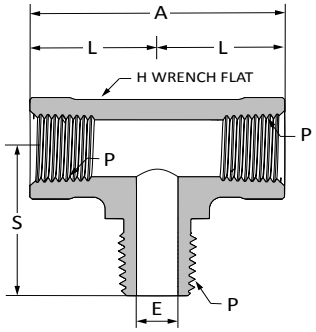




TruFit Part #	P Male & Female NPT Size	A	E Minimum Opening	H	L	S	316 SS Working Pressure	Brass Working Pressure
T2ST	1/8	1.44	0.19	9/16	0.66	0.78 (19.8)	9,250	3,250
T4ST	1/4	1.97	0.28	3/4	0.88	1.09 (27.7)	7,750	3,350
T6ST	3/8	2.24	0.40 (10.2)	7/8	1.02	1.22 (31)	6,800	2,650
T8ST	1/2	2.70	0.53 (13.5)	1 1/16	1.23	1.47 (37.3)	5,250	2,450
T12ST	3/4	2.99	0.71 (18)	1 3/8	1.38	1.61 (40.9)	5,600	-
T16ST	1	3.59	0.93 (23.6)	1 5/8	1.62	1.97 (50)	5,250	-
T20ST	1 1/4	4.08	1.25 (31.8)	2	1.70	2.38 (60.5)	6,350	-
T24ST	1 1/2	4.72	1.50 (38.1)	2 3/8	2.08	2.64 (67.1)	5,600	-
T32ST	2	5.39	1.94 (49.3)	2 7/8	2.39	3.00 (76.2)	4,650	-

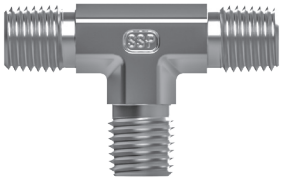
Dimensions are for reference only and are subject to change.

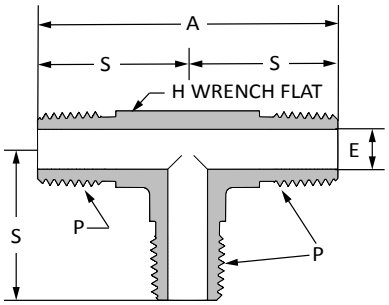
BT: Branch Tee



TruFit Part #	P Male & Female NPT Size	A	E Minimum Opening	H	L	S	316 SS Working Pressure	Brass Working Pressure
T2BT	1/8	1.32	0.19	9/16	0.66	0.78	9,250	3,250
T4BT	1/4	1.76	0.28	3/4	0.88	1.09	7,750	3,350
T6BT	3/8	2.04	0.40	7/8	1.02	1.22	6,800	2,650
T8BT	1/2	2.46	0.53	1 1/16	1.23	1.47	5,950	2,450
T12BT	3/4	2.27	0.71	1 3/8	1.36	1.59	5,600	-
T16BT	1	3.24	0.93	1 5/8	1.62	1.97	5,250	-
T20BT	1 1/4	3.40	1.25	2	1.70	2.38	6,200	-
T24BT	1 1/2	4.16	1.50	2 3/8	2.08	2.64	5,100	-
T32BT	2	4.78	1.94	2 7/8	2.39	3.00	4,000	-

MT: Male Tee

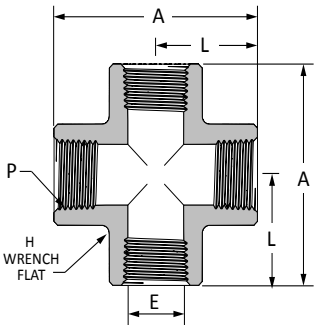




TruFit Part #	P Male NPT Size	A	E Minimum Opening	H	S	316 SS Working Pressure	Brass Working Pressure
T2MT	1/8	1.56	0.19	7/16	0.78	10,100	5,050
T4MT	1/4	2.18	0.28	9/16	1.09	8,300	4,050
T6MT	3/8	2.44	0.40	3/4	1.22	7,850	3,950
T8MT	1/2	2.94	0.53	7/8	1.47	7,750	3,850
T12MT	3/4	3.18	0.71	1 1/16	1.59	7,350	-
T16MT	1	3.94	0.93	1 5/16	1.97	5,500	-
TruFit 10K							
T4MT-10K	1/4	2.18	0.25	9/16	1.09	10,000	-
T6MT-10K	3/8	2.44	0.33	3/4	1.22	10,000	-
T8MT-10K	1/2	2.94	0.41	7/8	1.47	10,000	-

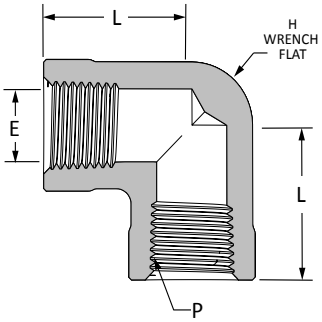
Dimensions are for reference only and are subject to change.

PCS: *Pipe Cross*



TruFit Part #	P Female NPT Size	A	E Minimum Opening	H	L	316 SS Working Pressure	Brass Working Pressure
T2PCS	1/8	1.32	0.34	9/16	0.66	9,250	3,250
T4PCS	1/4	1.76	0.45	3/4	0.88	7,750	3,350
T6PCS	3/8	2.04	0.59	7/8	1.02	6,800	2,650
T8PCS	1/2	2.46	0.73	1 1/16	1.23	5,950	2,450
T12PCS	3/4	2.72	0.94	1 5/16	1.36	5,600	2,350
T16PCS	1	3.24	1.17	1 5/8	1.62	5,250	2,250

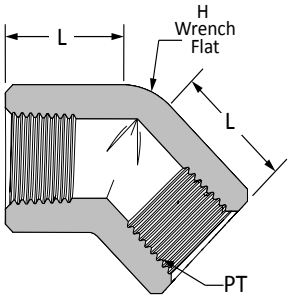
E: *Elbow*



TruFit Part #	P Female NPT Size	E Minimum Opening	H	L	316 SS Working Pressure	Brass Working Pressure
T2E	1/8	0.34	9/16	0.66	9,250	3,250
T4E	1/4	0.45	3/4	0.88	7,750	3,350
T6E	3/8	0.59	7/8	1.02	6,800	2,650
T8E	1/2	0.73	1 1/16	1.23	5,950	2,450
T12E	3/4	0.94	1 5/16	1.36	5,600	2,350
T16E	1	1.17	1 5/8	1.62	5,250	2,250
T20E	1-1/4	1.47	1 7/8	1.70	1,800	-
T24E	1-1/2	1.69	2 1/2	2.08	4,550	-
T32E	2	2.16	2 7/8	2.39	3,050	-
TruFit 10K						
T2E-10K	1/8	0.33	3/4	0.66	10,000	-
T4E-10K	1/4	0.42	3/4	0.88	10,000	-
T6E-10K	3/8	0.56	1-1/16	1.02	10,000	-
T8E-10K	1/2	0.69	1-5/16	1.23	10,000	-

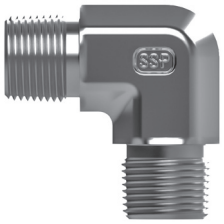
Dimensions are for reference only and are subject to change.

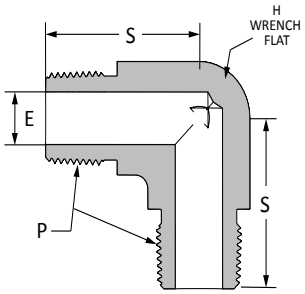
E45: 45° Elbow



TruFit Part #	P Female NPT Size	E Minimum Opening	H	L	316 SS Working Pressure	Brass Working Pressure
T2E45	1/8	0.19	9/16	0.50	9,250	3,250
T4E45	1/4	0.28	3/4	0.69	7,750	3,350
T6E45	3/8	0.38	7/8	0.75	6,800	2,650
T8E45	1/2	0.47	1 1/16	0.94	5,950	2,450
T12E45	3/4	0.62	1 5/16	1.00	5,600	2,350
T16E45	1	0.88	1 5/8	1.19	5,250	2,250

ME: Male Elbow

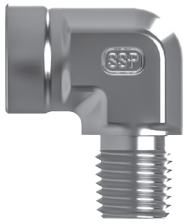


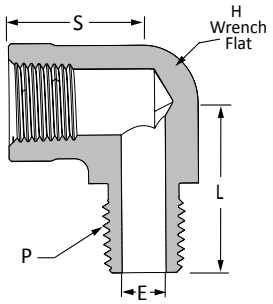


TruFit Part #	P Male NPT Size	E Minimum Opening	H	S	316 SS Working Pressure	Brass Working Pressure
T2ME	1/8	0.19	7/16	0.78	10,100	5,050
T4ME	1/4	0.28	9/16	1.09	8,300	4,050
T6ME	3/8	0.40	3/4	1.22	7,850	3,950
T8ME	1/2	0.53	7/8	1.47	7,750	3,850
T12ME	3/4	0.72	1 1/16	1.59	4,150	2,100
T16ME	1	0.94	1 5/8	1.57	3,800	1,500
TruFit 10K						
T4ME-10K	1/4	0.25	9/16	1.09	10,000	-
T6ME-10K	3/8	0.33	3/4	1.22	10,000	-
T8ME-10K	1/2	0.41	7/8	1.47	10,000	-

Dimensions are for reference only and are subject to change.

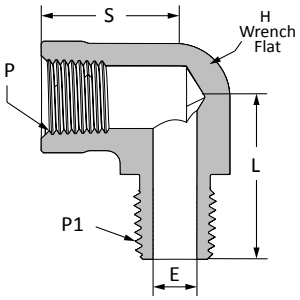
SE: *Street Elbow*





TruFit Part #	P Male & Female NPT Size	E Minimum Opening	H	L	S	316 SS Working Pressure	Brass Working Pressure
T1SE	1/16	0.12	9/16	0.50	0.72	9,600	3,350
T2SE	1/8	0.19	9/16	0.66	0.78	9,250	3,250
T4SE	1/4	0.28	3/4	0.88	1.09	7,750	3,350
T6SE	3/8	0.40	7/8	1.02	1.22	6,800	2,650
T8SE	1/2	0.53	1 1/16	1.23	1.47	5,950	2,450
T12SE	3/4	0.72	1 5/16	1.36	1.59	5,600	2,350
T16SE	1	0.93	1 5/8	1.62	1.97	5,250	2,250
T20SE	1 1/4	1.25	2	2.38	1.70	1,800	-
T24SE	1 1/2	1.50	2 3/8	2.64	2.08	2,800	-
T32SE	2	1.94	2 7/8	3.00	2.39	2,450	-
TruFit 10K							
T2SE-10K	1/8	4.8	3/4	0.98	0.66	10,000	-
T4SE-10K	1/4	6.3	3/4	1.09	0.88	10,000	-
T6SE-10K	3/8	8.3	1 1/16	1.22	1.02	10,000	-
T8SE-10K	1/2	10.4	1 5/16	1.47	1.23	10,000	-

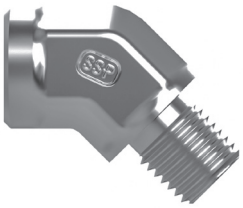
RSE: *Reducing Street Elbow*

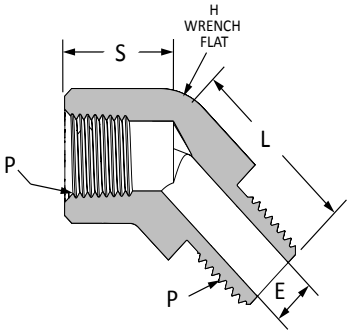


TruFit Part #	P Female NPT size	P1 Male NPT size	E Minimum Opening	H	L	S	316 SS Working Pressure	Brass Working Pressure
T2RSE1	1/8	1/16	0.12	9/16	0.91	0.88	6,550	3,250
T4RSE2	1/4	1/8	0.19	3/4	0.91	0.88	6,650	3,350
T6RSE4	3/8	1/4	0.28	7/8	1.22	1.02	5,350	2,650
T8RSE4	1/2	1/4	0.28	1 1/16	1.28	1.23	4,950	2,450
T8RSE6	1/2	3/8	0.38	1 1/16	1.28	1.23)	4,950	2,450

Dimensions are for reference only and are subject to change.

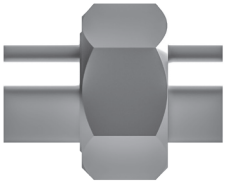
SE45: 45° Street Elbow

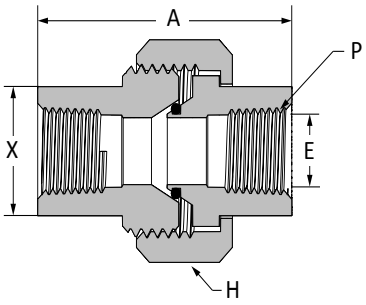




TruFit Part #	P Male & Female NPT Size	E Minimum Opening	H	L	S	316 SS Working Pressure	Brass Working Pressure
T2SE45	1/8	0.19	9/16	0.47	0.72	9,250	3,250
T4SE45	1/4	0.28	3/4	0.62	1.05	7,750	3,350
T6SE45	3/8	0.40	7/8	0.72	1.06	6,800	2,650
T8SE45	1/2	0.53	1 1/16	0.91	1.34	5,950	2,450
T12SE45	3/4	0.71	1 5/16	0.97	1.38	5,600	2,350
T16SE45	1	0.93	1 5/8	1.12	1.72	5,250	2,250
T20SE45	1 1/4	1.25	2	1.80	1.63	2,350	-
T24SE45	1 1/2	1.50	2 3/8	2.06	1.69	2,800	-

KUT: Female Pipe Union

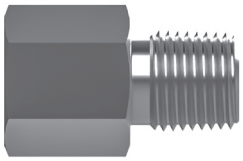


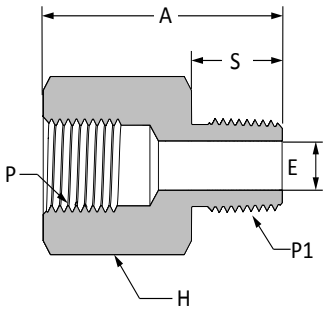


TruFit Part #	Pipe Size	P Female NPT Thread	A	E	H	X	Teflon Ring Size	316 SS Working Pressure
T2KUT	1/8	1/8	1.63	0.34	1 1/8	0.75	8TR	6,950
T4KUT	1/4	1/4	1.63	0.39	1 1/8	0.75	8TR	5,700
T6KUT	3/8	3/8	1.73	0.46	1 1/4	0.88	10TR	4,600
T8KUT	1/2	1/2	1.91	0.62	1 3/4	1.13	14TR	5,250
T12KUT	3/4	3/4	2.31	0.81	2	1.38	16TR	7,200
T16KUT	1	1	2.91	1.04	2 1/2	1.81	20TR	5,350
T20KUT	1 1/4	1 1/4	3.67	1.38	3	2.25	24TR	5,550
T24KUT	1 1/2	1 1/2	3.80	1.61	3 5/16	2.50	28TR	4,200
T32KUT	2	2	4.05	2.06	3 3/4	3.00	36TR	4,000

Dimensions are for reference only and are subject to change.

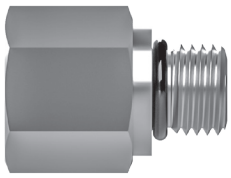
FST-MC: *Female SAE x Male NPT*

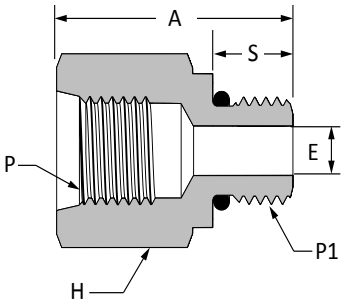




TruFit Part #	P Female SAE Thread	P1 Male NPT Thread	A	E	S	H	316 SS Working Pressure
T6FST4MC	9/16-18	1/4-18	1.36	0.28	0.56	13/16	5,400
T8FST6MC	3/4-16	3/8-18	1.49	0.41	0.56	1 1/16	5,400
T8FST8MC	3/4-16	1/2-14	1.58	0.53	0.75	1 1/16	5,400

FST-MST: *Female SAE x Male SAE*





TruFit Part #	P Female SAE Thread	P1 Male SAE Thread	A	E	S	H	316 SS Working Pressure
T4FST4MST	7/16-20	7/16-20	1.06	0.20	0.36	11/16	5,400
T4FST6MST	7/16-20	9/16-18	1.16	0.20	0.36	13/16	5,400
T6FST6MST	9/16-18	9/16-18	1.19	0.30	0.39	13/16	5,400
T6FST8MST	9/16-18	3/4-16	1.38	0.30	0.39	1 1/16	4,800
T8FST6MST	3/4-16	9/16-18	1.06	0.42	0.44	7/8	5,400
T8FST8MST	3/4-16	3/4-16	1.47	0.42	0.44	1 1/16	4,800
T8FST10MST	3/4-16	7/8-14	1.56	0.42	0.44	1 1/8	3,600
T10FST8MST	7/8-14	3/4-16	1.31	0.50	0.50	1	4,800
T10FST12MST	7/8-14	1 1/16-12	1.69	0.50	0.50	1 3/8	4,200
T12FST10MST	1 1/16-12	7/8 -14	1.44	0.66	0.59	1 1/4	3,600
T12FST16MST	1 1/16-12	1 5/16-12	1.88	0.66	0.59	1 5/8	2,400
T16FST12MST	1 5/16-12	1 /16-12	1.75	0.88	0.59	1 1/2	4,200

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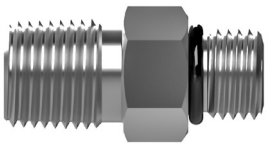
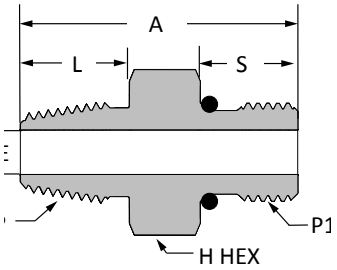
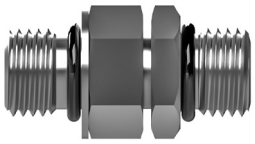
MC-MST: Male NPT x Male SAE

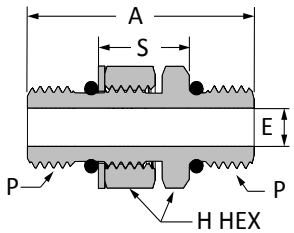




TruFit Part #	P1 Male NPT Thread	P Male SAE Thread	A	E	S	L	H	316 SS Working Pressure
T4MC4MST	1/4-18	7/16-20	1.24	0.20	0.56	0.36	9/16	6,000
T4MC6MST	1/4-18	9/16 - 18	1.30	0.28	0.56	0.36	11/16	6,000
T6MC6MST	3/8-18	9/16-18	1.30	0.30	0.56	0.39	11/16	6,000
T6MC8MST	3/8-18	3/4-16	1.37	0.41	0.56	0.39	7/8	6,000
T8MC8MST	1/2-14	3/4-16	1.56	0.42	0.75	0.44	7/8	6,000
T8MC10MST	1/2-14	7/8-14	1.69	0.50	0.75	0.44	1	4,800
T12MC12MST	3/4-14	1 1/16-12	1.75	0.66	0.75	0.59	1 1/4	4,800
T12MC16MST	3/4-14	1 5/16-12	1.89	0.72	0.75	0.59	1 1/2	3,600
T16MC16MST	1-11 1/2	1 5/16-12	1.90	0.84	0.94	0.59	1 1/2	3,600
TruFit 10K								
T4MC4MST-10K	1/4 - 18	7/16 - 20	1.24	0.19	0.57	0.36	5/8	10000
T4MC6MST-10K	1/4 - 18	9/16 - 18	1.30	0.19	0.57	0.39	11/16	10000
T6MC6MST-10K	3/8 - 18	9/16 - 18	1.30	0.26	0.57	0.39	11/16	10000
T6MC8MST-10K	3/8 - 18	3/4 - 16	1.37	0.36	0.57	0.44	7/8	10000
T8MC8MST-10K	1/2 - 14	3/4 - 16	1.56	0.36	0.76	0.44	7/8	10000
T8MC10MST-10K	1/2 - 14	3/4 - 16	1.59	0.42	0.76	0.50	1-1/8	10000
T12MC12MST-10K	3/4 - 14	1-1/16 - 12	1.75	0.51	0.76	0.59	1-1/4	10000
T12MC16MST-10K	3/4 - 14	1-5/16 - 12	1.89	0.67	0.76	0.59	1-1/2	10000
T16MC16MST-10K	1 - 11-1/2	1-5/16 - 12	1.90	0.67	0.95	0.59	1-1/2	10000

MST: Male SAE x Male SAE

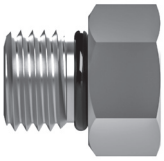


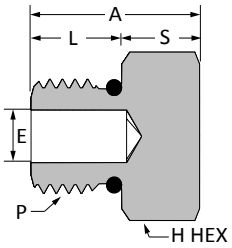


TruFit Part #	P Male SAE Thread	A	E	S	H	316 SS Working Pressure
T4MST	7/16-20	1.22	0.20	0.50	9/16	6,000
T6MST	9/16-18	1.04	0.30	0.59	11/16	6,000
T8MST	3/4-16	1.56	0.42	0.63	7/8	6,000
T10MST	7/8-14	1.81	0.48	0.75	1	5,400
T12MST	11/16-12	2.13	0.66	0.89	1 1/4	4,800
T16MST	1 5/16-12	2.13	0.88	0.89	1 1/2	3,600
T20MST	1 5/8-12	2.13	1.08	0.89	1 7/8	3,000
T24MST	1 7/8-12	2.13	1.34	0.89	2 1/8	2,400
T32MST	2 1/2-12	2.13	1.81	0.89	2 3/4	1,800

Dimensions are for reference only and are subject to change.

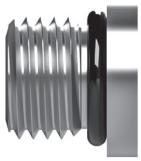
GP: *Hex Plug, SAE*

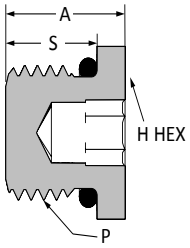




TruFit Part #	P Thread	A	E	S	L	H	316 SS Working Pressure
T2GP	5/16 – 24	0.60	0.09	0.28	0.30	7/16	7,200
T3GP	3/8 – 24	0.60	0.13	0.28	0.30	1/2	7,200
T4GP	7/16 – 20	0.67	0.20	0.28	0.36	9/16	7,200
T5GP	1/2 - 20	0.67	0.23	0.28	0.36	5/8	7,200
T6GP	9/16 – 18	0.73	0.30	0.31	0.39	11/16	7,200
T8GP	3/4 - 16	0.80	0.42	0.34	0.44	7/8	7,200
T10GP	7/8 – 14	0.93	0.50	0.41	0.50	1	7,200
T12GP	1-1/16 - 12	1.09	0.66	0.47	0.59	1 1/4	7,200
T16GP	1-5/16 – 12	1.12	0.88	0.50	0.59	1 1/2	6,600
T20GP	1-5/8 – 12	1.20	1.09	0.58	0.59	1 7/8	4,800
T24GP	1-7/8 – 12	1.27	1.34	0.65	0.59	2 1/8	3,600
T32GP	2-1/2 - 12	1.43	1.81	0.81	0.59	2 3/4	2,400

CGP: *Plug, SAE Countersunk*

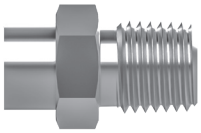


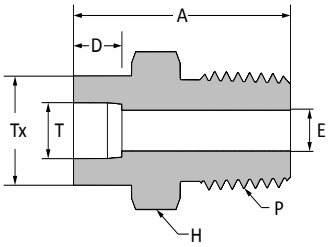


TruFit Part #	P Thread	A	S	H	316 SS Working Pressure
T2CGP	5/16-24	0.40	0.30	1/8	7200
T3CGP	3/8-24	0.40	0.30	1/8	7200
T4CGP	7/16-20	0.47	0.36	3/16	7200
T5CGP	1/2-20	0.47	0.36	3/16	7200
T6CGP	9/16-18	0.50	0.39	1/4	7200
T8CGP	3/4-16	0.58	0.44	5/16	7200
T10CGP	7/8-14	0.65	0.50	6/16	7200
T12CGP	1 1/16-12	0.77	0.59	9/16	7200
T16CGP	1 5/16-12	0.77	0.59	10/16	6600
T20CGP	1 5/8-12	0.77	0.59	3/4	4800
T24CGP	1 7/8-12	0.77	0.59	3/4	3600

Dimensions are for reference only and are subject to change.

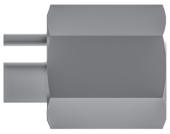
TSMC: Tube Socket Weld x Male Connector

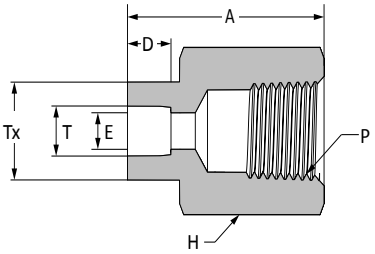




TruFit Part #	T Tube O.D.	P NPT Male Pipe	A	D	E	H	Tx	316 SS Working Pressure
T4TSMC4	1/4	1/4	1.12	0.25	0.19	5/8	0.50	8,000
T6TSMC4	3/8	1/4	1.25	0.34	0.28	5/8	0.60	8,000
T6TSMC6	3/8	3/8	1.31	0.34	0.28	3/4	0.63	7,800
T6TSMC8	3/8	1/2	1.50	0.34	0.37	7/8	0.63	7,700
T8TSMC4	1/2	1/4	1.44	0.40	0.28	13/16	0.79	6,600
T8TSMC6	1/2	3/8	1.31	0.38	0.37	3/4	0.73	6,600
T8TSMC8	1/2	1/2	1.66	0.41	0.43	7/8	0.81	6,600
T10TSMC8	5/8	1/2	1.63	0.47	0.50	15/16	0.92	6,700
T12TSMC12	3/4	3/4	1.69	0.50	0.66	1 1/8	1.11	6,700
T16TSMC16	1	1	2.00	0.56	0.91	1 3/8	1.36	6,100

TSFC: Tube Socket Weld Female Connector

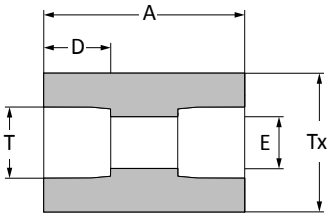




TruFit Part #	T Tube O.D.	P NPT Male Pipe	A	D	E	H	Tx	316 SS Working Pressure
T2TSFC2	1/8	1/8	0.88	0.20	0.09	9/16	0.38	6,500
T4TSFC2	1/4	1/8	0.97	0.25	0.19	9/16	0.50	6,500
T4TSFC4	1/4	1/4	1.13	0.25	0.19	3/4	0.50	6,600
T6TSFC4	3/8	1/4	1.22	0.34	0.31	3/4	0.63	6,600
T8TSFC6	1/2	3/8	1.41	0.40	0.43	7/8	0.81	5,300
T8TSFC8	1/2	1/2	1.63	0.40	0.43	1 1/8	0.81	4,900
T10TSFC8	5/8	1/2	1.63	0.47	0.50	1 1/8	0.94	4,600
T12TSFC12	3/4	3/4	1.78	0.50	0.66	1 3/8	1.13	4,600

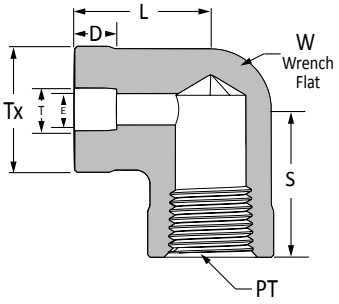
Dimensions are for reference only and are subject to change.

TSU: Tube Socket Weld Union



TruFit Part #	T Tube O.D.	A	D	E	Tx	316 SS Working Pressure
T4TSU	1/4	0.75	0.25	0.18	0.50	10,700
T6TSU	3/8	0.97	0.34	0.31	0.60	8,100
T8TSU	1/2	1.06	0.4	0.44	0.81	6,600
T10TSU	5/8	1.25	0.47	0.5	0.93	6,400
T12TSU	3/4	1.31	0.5	0.65	1.12	5,900
T16TSU	1	1.56	0.56	0.9	1.37	5,600

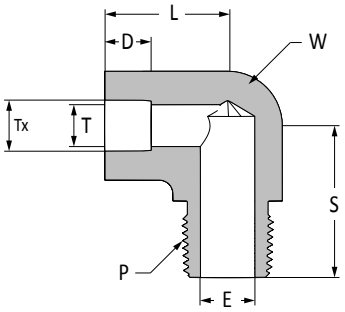
TSFE: Tube Socket Weld Female Elbow



TruFit Part #	T Tube O.D.	P NPT Male Pipe	D	E	L	S	Tx	W	316 SS Working Pressure
T4TSFE4	1/4	1/4	0.25	0.19	0.81	0.90	0.50	3/4	7,400
T6TSFE4	3/8	1/4	0.34	0.31	0.91	0.88	0.63	7/8	7,400
T6TSFE8	3/8	1/2	0.40	0.31	1.03	1.23	0.63	1 1/16	5,700
T8TSFE8	1/2	1/2	0.41	0.44	1.13	1.23	0.81	1 1/16	5,700
T10TSFE8	5/8	1/2	0.47	0.50	1.16	1.23	0.94	1 1/16	5,600
T12TSFE12	3/4	3/4	0.50	0.66	1.44	1.36	1.13	1 5/16	4,600

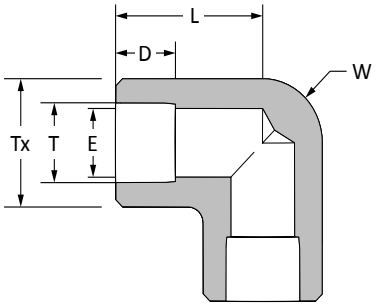
Dimensions are for reference only and are subject to change.

TSME: *Tube Socket Weld Male Elbow*



TruFit Part #	T Tube O.D.	P NPT Male Pipe	D	E	L	S	Tx	W	316 SS Working Pressure
T4SME4	1/4	1/4	0.25	0.28	0.66	1.09	0.50	1/2	8,000
T6TSME4	3/8	1/4	0.31	0.28	0.91	1.09	0.58	1/2	8,000
T6TSME6	3/8	3/8	0.34	0.41	0.93	1.24	0.63	11/16	7,800
T6TSME8	3/8	1/2	0.46	0.53	0.97	1.47	0.39	13/16	7,700
T8TSME8	1/2	1/2	0.40	0.53	1.08	1.49	0.81	13/16	6,600
T12TSME12	3/4	3/4	0.50	0.71	1.33	1.61	1.12	1	5,800

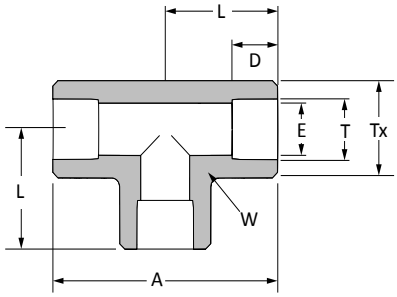
TSUE: *Tube Socket Weld Union Elbow*



TruFit Part #	T Tube O.D.	D	E	L	Tx	W	Working Pressure
T4TSUE	1/4	0.25	0.18	0.69	0.49	7/16	10,700
T6TSUE	3/8	0.34	0.31	0.81	0.58	1/2	8,100
T8TSUE	1/2	0.40	0.44	1.02	0.78	3/4	6,600
T10TSUE	5/8	0.47	0.50	1.16	0.92	7/8	6,700
T12TSUE	3/4	0.50	0.65	1.31	1.12	1	5,900
T16TSUE	1	0.56	0.91	1.47	1.37	1 1/4	5,600

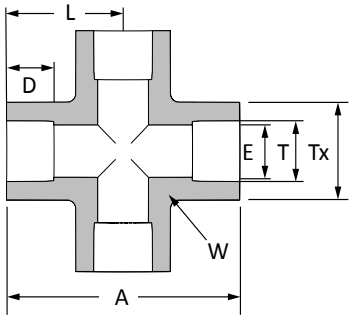
Dimensions are for reference only and are subject to change.

TSUT: Tube Socket Weld Union Tee



TruFit Part #	T Tube O.D.	A	D	E	L	Tx	W	316 SS Working Pressure
T2TSUT	1/8	1.26	0.20	0.09	0.63	0.38	7/16	12,600
T4TSUT	1/4	1.38	0.25	0.18	0.69	0.50	7/16	10,700
T6TSUT	3/8	1.62	0.34	0.31	0.81	0.63	9/16	8,100
T8TSUT	1/2	2.00	0.40	0.43	1.00	0.73	3/4	6,600
T10TSUT	5/8	2.30	0.46	0.50	1.16	0.88	7/8	6,700
T12TSUT	3/4	2.62	0.50	0.65	1.31	1.04	1-1/16	5,900
T16TSUT	1	2.94	0.56	0.90	1.47	1.44	1-5/16	5,600

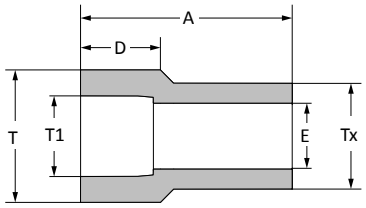
TSUC: Tube Socket Weld Union Cross



TruFit Part #	T Tube O.D.	A	D	E	L	Tx	W	316 SS Working Pressure
T2TSUC	1/8	1.26	0.20	0.09	0.63	0.38	7/16	11,000
T4TSUC	1/4	1.38	0.25	0.18	0.69	0.49	7/16	10,700
T6TSUC	3/8	1.62	0.34	0.31	0.81	0.58	9/16	8,100
T8TSUC	1/2	2.00	0.40	0.44	1.00	0.78	3/4	6,600
T12TSUC	3/4	2.62	0.50	0.65	1.31	1.16	1-1/16	5,900

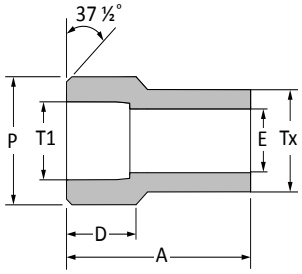
Dimensions are for reference only and are subject to change.

MTTS: *Male Tube Weld x Tube Socket Weld*



TruFit Part #	T Tube O.D.	T1 Tube Socket	A	D	E	Tx	316 SS Working Pressure
ISST4MTTS2	1/4	1/8	0.56	0.10	0.09	0.29	12,600
ISST6MTTS4	3/8	1/4	0.75	0.28	0.18	0.48	8,200
ISST8MTTS4	1/2	1/4	0.88	0.28	0.18	0.50	7,500
ISST8MTTS6	1/2	3/8	0.88	0.31	0.32	0.60	7,500
ISST12MTTS8	3/4	1/2	1.12	0.38	0.40	0.75	6,300
ISST16MTTS8	1	1/2	1.38	0.38	0.40	0.73	5,300

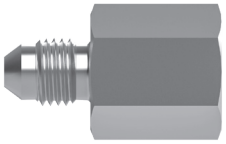
MPTS: *Male Pipe Weld x Tube Socket Weld*

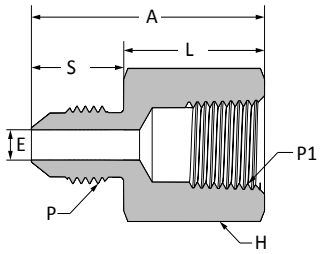


TruFit Part #	P Pipe Size	T1 Tube Socket	A	D	E	Tx	316 SS Working Pressure
ISST4MPTS4	1/4	1/4	0.88	0.28	0.18	0.48	9,600
ISST6MPTS6	3/8	3/8	1.03	0.31	0.28	0.60	7,600
ISST6MPTS8	3/8	1/2	1.00	0.38	0.42	0.73	6,200
ISST8MPTS4	1/2	1/4	1.12	0.28	0.18	0.48	7,300
ISST8MPTS6	1/2	3/8	1.12	0.31	0.28	0.60	7,300
ISST8MPTS8	1/2	1/2	1.19	0.38	0.40	0.73	6,200
ISST12MPTS6	3/4	3/8	1.50	0.31	0.28	0.60	6,200
ISST12MPTS8	3/4	1/2	1.50	0.38	0.40	0.73	6,200
ISST12MPTS12	3/4	3/4	1.50	0.44	0.62	1.05	5,700
ISST16MPTS6	1	3/8	1.38	0.31	0.28	0.60	5,600
ISST16MPTS8	1	1/2	1.56	0.38	0.40	0.73	5,600

Dimensions are for reference only and are subject to change.

AN-FC: *37° AN Female Connector*

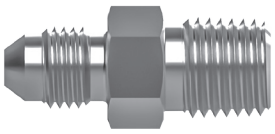


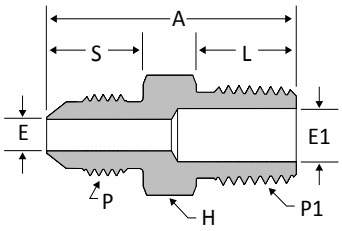


TruFit Part #	Tube O.D.	P Thread	P1 Female NPT Thread	A	E	S	L	H	316 SS Working Pressure	Brass Working Pressure
T2AN2FC	1/8	5/16	1/8	1.12	0.06	0.45	0.67	9/16	6,000	-
T4AN2FC	1/4	7/16	1/8	1.19	0.17	0.55	0.64	9/16	6,000	3,250
T4AN4FC	1/4	7/16	1/4	1.38	0.17	0.55	0.83	3/4	6,000	3,250
T5AN4FC	5/16	1/2	1/4	1.34	0.23	0.55	0.79	3/4	6,000	-
T6AN4FC	3/8	9/16	1/4	1.40	0.30	0.56	0.84	3/4	6,000	3,250
T6AN6FC	3/8	9/16	3/8	1.41	0.30	0.56	0.85	7/8	6,000	3,250
T8AN6FC	1/2	3/4	3/8	1.56	0.39	0.66	0.90	7/8	6,000	-
T8AN4FC	1/2	3/4	1/4	1.55	0.39	0.61	0.89	13/16	6,000	-
T8AN8FC	1/2	3/4	1/2	1.75	0.39	0.66	1.09	1-1/8	6,000	-
T10AN8FC	5/8	7/8	1/2	1.89	0.48	0.76	1.13	1-1/8	6,000	-
T12AN12FC	3/4	1 1/16	3/4	2.06	0.61	0.86	1.05	1-3/8	4,800	2,600
T12AN8FC	3/4	1 1/16	1/2	1.91	0.61	0.86	1.20	1-1/8	5,400	-
T16AN16FC	1	1 5/16	1	2.35	0.84	0.91	1.46	1-5/8	3,600	1,950
T20AN20FC	1 1/4	1 5/8	1-1/4	2.49	1.08	0.96	1.53	2	3,000	-
T24AN24FC	1 1/2	1 7/8	1-1/2	2.62	1.31	1.08	1.54	2-3/8	2,400	-
T32AN32FC	2	2 1/2	2	2.97	1.78	1.33	1.64	2-7/8	1,800	-

Dimensions are for reference only and are subject to change.

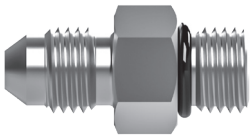
AN-MC: 37° AN x Male NPT

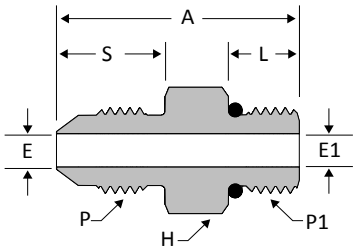




TruFit Part #	Tube O.D.	P Thread	P1 Female NPT Thread	A	E	E1	S	L	H	316 SS Working Pressure	Brass Working Pressure
T2AN2MC	1/8	5/16-24	1/8	1.11	0.06	0.19	0.45	0.38	7/16	6,000	-
T3AN2MC	3/16	3/8-24	1/8	1.14	0.13	0.19	0.48	0.38	7/16	6,000	-
T4AN2MC	1/4	7/16-20	1/8	1.22	0.17	0.17	0.55	0.38	1/2	6,000	3,250
T4AN4MC	1/4	7/16-20	1/4	1.42	0.17	0.17	0.55	0.56	9/16	6,000	3,250
T4AN6MC	1/4	7/16-20	3/8	1.44	0.17	0.17	0.55	0.56	3/4	6,000	-
T4AN8MC	1/4	7/16-20	1/2	1.69	0.17	0.17	0.55	0.75	7/8	6,000	-
T5AN2MC	5/16	1/2-20	1/8	1.22	0.23	0.19	0.55	0.38	9/16	6,000	-
T5AN4MC	5/16	1/2 -20	1/4	1.42	0.23	0.23	0.55	0.56	9/16	6,000	-
T6AN2MC	3/8	9/16-18	1/8	1.24	0.30	0.19	0.56	0.38	5/8	6,000	-
T6AN4MC	3/8	9/16-18	1/4	1.43	0.30	0.28	0.56	0.56	5/8	6,000	3,250
T6AN6MC	3/8	9/16-18	3/8	1.44	0.30	0.30	0.56	0.56	3/4	6,000	3,250
T6AN8MC	3/8	9/16-18	1/2	1.69	0.30	0.30	0.56	0.75	7/8	6,000	-
T8AN4MC	1/2	3/4-16	1/4	1.53	0.39	0.19	0.66	0.56	13/16	6,000	-
T8AN6MC	1/2	3/4-16	3/8	1.53	0.39	0.39	0.66	0.56	13/16	6,000	3,250
T8AN8MC	1/2	3/4-16	1/2	1.78	0.39	0.39	0.66	0.75	7/8	6,000	3,250
T8AN12MC	1/2	3/4-16	3/4	1.85	0.39	0.39	0.66	0.75	1 1/8	4,800	-
T10AN8MC	5/8	7/8-14	1/2	1.89	0.48	0.48	0.76	0.75	15/16	6,000	-
T10AN12MC	5/8	7/8-14	3/4	1.95	0.48	0.48	0.76	0.75	1 1/8	4,800	-
T12AN8MC	3/4	1 1/16-12	1/2	2.06	0.61	0.53	0.86	0.75	1 1/8	5,400	-
T12AN12MC	3/4	1 1/16-12	3/4	2.06	0.61	0.61	0.86	0.75	1 1/8	4,800	2,600
T12AN16MC	3/4	1 1/16-12	1	2.25	0.61	0.61	0.86	0.94	1 3/8	3,600	-
T14AN12MC	7/8	1 3/16 -12	3/4	2.09	0.72	0.72	0.86	0.75	1 1/4	4,200	-
T16AN12MC	1	1 5/16-12	3/4	2.11	0.84	0.72	0.91	0.75	1 3/8	4,200	-
T16AN16MC	1	1 5/16-12	1	2.30	0.84	0.84	0.91	0.94	1 3/8	3,600	1,950
T20AN20MC	1-1/4	1 5/8-12	1 1/4	2.45	1.08	1.08	0.96	0.97	1 11/16	3,000	-
T24AN24MC	1-1/2	1 7/8-12	1 1/2	2.68	1.31	1.31	1.08	1.00	2	2,400	-
T32AN32MC	2	2 1/2-12	2	3.11	1.78	1.78	1.33	1.03	2 5/8	1,800	-
TruFit 10K											
T2AN4MC-10K	1/8	5/16 - 24	1/4 - 18	1.32	0.06	0.25	0.45	0.57	9/16	10,000	-
T4AN4MC-10K	1/4	7/16 – 20	1/4 - 18	1.42	0.17	0.25	0.55	0.57	9/16	10,000	-
T4AN6MC-10K	1/4	7/16 – 20	3/8 - 18	1.42	0.17	0.17	0.55	0.57	3/4	10,000	-
T4AN8MC-10K	1/4	7/16 – 20	1/2 - 14	1.68	0.17	0.17	0.55	0.76	7/8	10,000	-
T6AN4MC-10K	3/8	9/16 – 18	1/4 - 18	1.43	0.26	0.25	0.56	0.57	5/8	10,000	-
T6AN6MC-10K	3/8	9/16 – 18	3/8 - 18	1.43	0.26	0.26	0.56	0.57	3/4	10,000	-
T6AN8MC-10K	3/8	9/16 – 18	1/2 - 14	1.69	0.26	0.41	0.56	.076	7/8	10,000	-
T8AN4MC-10K	1/2	3/4 - 16	1/4 - 18	1.53	0.36	0.25	0.66	0.57	13/16	10,000	-
T8AN6MC-10K	1/2	3/4 - 16	3/8 - 18	1.53	0.36	0.33	0.66	0.57	13/16	10,000	-
T8AN8MC-10K	1/2	3/4 - 16	1/2 - 14	1.79	0.36	0.36	0.66	0.76	7/8	10,000	-
T8AN12MC-10K	1/2	3/4 - 16	3/4 - 14	1.85	0.36	0.36	0.66	0.76	1-1/8	10,000	-
T12AN8MC-10K	3/4	1-1/16 – 12	1/2 - 14	2.06	0.52	0.41	0.86	0.76	1-1/8	10,000	-
T12AN12MC-10K	3/4	1-1/16 – 12	3/4 - 14	2.06	0.52	0.52	0.86	0.76	1-1/8	10,000	-
T16AN6MC-10K	1	1-5/16 - 12	3/8 - 18	1.92	0.67	0.33	0.91	0.57	1-3/8	10,000	-
T16AN8MC-10K	1	1-5/16 - 12	1/2 - 14	2.11	0.67	0.41	0.91	0.76	1-3/8	10,000	-
T16AN12MC-10K	1	1-5/16 – 12	3/4 - 14	2.11	0.67	0.52	0.91	0.76	1-3/8	10,000	-
T16AN16MC-10K	1	1-5/16 – 12	1	2.30	0.67	0.67	0.91	0.95	1-3/8	10,000	-

AN-MST: 37° AN x Male SAE

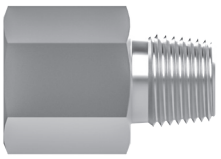


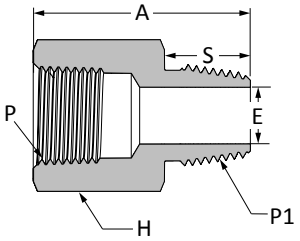


TruFit Part #	Tube O.D.	P Thread	P1 Male SAE Thread	A	E	E1	S	L	H	316 SS Working Pressure
T2AN2MST	1/8	5/16-24	5/16	1.06	0.06	0.06	0.45	0.30	7/16	6,000
T3AN3MST	3/16	3/8-24	3/8	1.10	0.13	0.13	0.48	0.30	1/2	6,000
T4AN4MST	1/4	7/16-20	7/16	1.23	0.17	0.17	0.55	0.36	9/16	6,000
T4AN5MST	1/4	7/16 – 20	1/2	1.23	0.17	0.23	0.55	0.36	5/8	6,000
T4AN6MST	1/4	7/16 – 20	9/16	1.29	0.17	0.30	0.55	0.39	11/16	6,000
T4AN8MST	1/4	7/16-20	3/4	1.37	0.17	0.39	0.55	0.44	7/8	6,000
T5AN5MST	5/16	1/2-20	1/2	1.23	0.23	0.23	0.55	0.36	5/8	6,000
T6AN6MST	3/8	9/16-18	9/16	1.30	0.30	0.30	0.56	0.36	11/16	6,000
T6AN4MST	3/8	9/16-18	7/16	1.29	0.30	0.17	0.56	0.36	5/8	6,000
T6AN8MST	3/8	9/16-18	3/4	1.38	0.30	0.39	0.56	0.44	7/8	6,000
T6AN10MST	3/8	9/16-18	7/8	1.50	0.30	0.48	0.56	0.50	1	6,000
T8AN8MST	1/2	3/4-16	3/4	1.48	0.39	0.39	0.66	0.44	7/8	6,000
T8AN6MST	1/2	3/4-16	9/16	1.38	0.39	0.30	0.66	0.39	13/16	6,000
T8AN10MST	1/2	3/4-16	7/8	1.60	0.39	0.48	0.66	0.50	1	6,000
T8AN12MST	1/2	3/4-16	1 1/16	1.76	0.39	0.61	0.66	0.59	1 1/4	6,000
T10AN8MST	5/8	7/8 – 14	3/4	1.60	0.48	0.39	0.76	0.44	15/16	6,000
T10AN10MST	5/8	7/8 – 14	7/8	1.70	0.48	0.48	0.76	0.50	1 1/4	6,000
T10AN12MST	5/8	7/8 -14	1 1/16	1.86	0.48	0.61	0.76	0.56	1 1/4	6,000
T12AN8MST	3/4	1 1/16-12	3/4	1.76	0.61	0.39	0.86	0.44	1-1/8	6,000
T12AN10MST	3/4	1 1/16-12	7/8	1.86	0.61	0.48	0.86	0.50	1 1/8	6,000
T12AN12MST	3/4	1 1/16-12	1 1/16	1.97	0.61	0.61	0.86	0.56	1 1/4	6,000
T12AN14MST	3/4	1 1/16--12	1 3/16	1.96	0.61	0.61	0.86	0.59	1 3/8	5,400
T12AN16MST	3/4	1 1/16-12	1 5/16	1.99	0.61	0.84	0.86	0.59	1 1/2	5,400
T16AN16MST	1	1 5/16-12	1 5/16	2.04	0.84	0.84	0.91	0.59	1 1/2	5,400
T16AN12MST	1	1 5/16-12	1 1/16	1.99	0.84	0.61	0.91	0.59	1 3/8	5,400
T20AN20MST	1 1/4	1 5/8-12	1 5/8	2.17	1.08	1.08	0.96	0.59	1 7/8	3,600
T24AN24MST	1 1/2	1 7/8-12	1 7/8	2.37	1.31	1.31	1.00	0.59	2 1/8	2,400
T32AN32MST	2	2 1/2-12	2 1/2	2.78	1.78	1.78	1.03	0.59	2 3/4	1,800
TruFit 10K										
T4AN4MST-10K	1/4	7/16 – 20	7/16	1.23	0.17	0.17	0.55	0.36	9/16	10,000
T4AN6MST-10K	1/4	7/16 – 20	9/16	1.29	0.17	0.26	0.55	0.39	11/16	10,000
T6AN4MST-10K	3/8	9/16 - 18	7/16	1.27	0.26	0.17	0.56	0.36	5/8	10,000
T6AN6MST-10K	3/8	9/16 – 18	9/16	1.30	0.26	0.26	0.56	0.39	11/16	10,000
T8AN8MST-10K	1/2	3/4 - 16	3/4	1.48	0.36	0.36	0.66	0.44	7/8	10,000

Dimensions are for reference only and are subject to change.

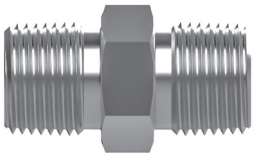
FC-MRT: Female NPT x Male ISO Tapered

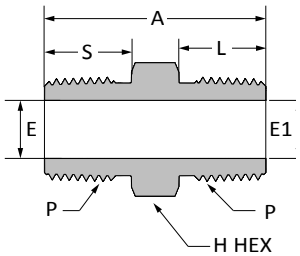




TruFit Part #	P Female NPT Thread	P1 Male ISO Tapered Thread	A	E Minimum Opening	S	H	316 SS Working Pressure	Brass Working Pressure
T2FC2MRT	1/8	1/8	1.04	0.19	0.38	5/8	6550	3250
T4FC4MRT	1/4	1/4	1.39	0.28	0.56	3/4	6650	3350
T6FC6MRT	3/8	3/8	1.44	0.41	0.56	7/8	5350	2650
T8FC8MRT	1/2	1/2	1.69	0.53	0.75	1 1/8	4950	2450
T12FC12MRT	3/4	3/4	1.93	0.72	0.75	1 3/8	4650	2350
T16FC16MRT	1	1	2.37	0.94	0.94	1 5/8	4450	2250
TruFit 10K								
T2FC2MRT-10K	1/8	1/8	1.04	0.17	0.38	5/8	10,000	-
T4FC4MRT-10K	1/4	1/4	1.39	0.24	0.56	3/4	10,000	-
T6FC6MRT-10K	3/8	3/8	1.44	0.32	0.56	7/8	10,000	-
T8FC8MRT-10K	1/2	1/2	1.69	0.40	0.75	1 1/8	10,000	-
T12FC12MRT-10K	3/4	3/4	1.93	0.53	0.75	1 3/8	10,000	-
T16FC16MRT-10K	1	1	2.37	0.67	0.94	1 5/8	10,000	-

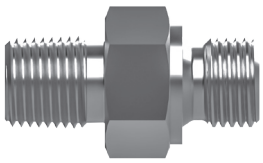
MC-MRT: Male NPT x Male ISO Tapered

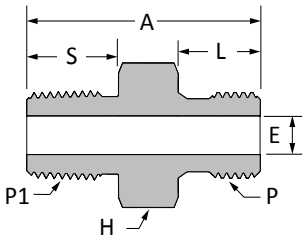




TruFit Part #	P Male NPT Thread	P1 Male ISO Tapered Thread	A	E Minimum Opening	E1	S	L	H	316 SS Working Pressure	Brass Working Pressure
T2MC2MRT	1/8	1/8	1.06	0.19	0.19	0.38	0.38	7/16	10,050	5,050
T4MC4MRT	1/4	1/4	1.45	0.28	0.19	0.56	0.56	5/8	8,050	4,050
T6MC6MRT	3/8	3/8	1.45	0.41	0.41	0.56	0.56	3/4	7,850	3,950
T8MC8MRT	1/2	1/2	1.89	0.53	0.53	0.75	0.75	7/8	7,750	3,850
T12MC12MRT	3/4	3/4	1.96	0.72	0.28	0.75	0.75	1 1/8	7,350	3,650
T16MC16MRT	1	1	2.34	0.94	0.94	0.94	0.94	1 3/8	5,350	2,650
TruFit 10K										
T2MC2MRT-10K	1/8-27	1/8-28	1.06	0.19	0.17	0.38	0.38	7/16	10,000	-
T4MC4MRT-10K	1/4-18	1/4-19	1.45	0.24	0.24	0.57	0.56	5/8	10,000	-
T6MC6MRT-10K	3/8-18	3/8-19	1.45	0.32	0.32	0.57	0.56	3/4	10,000	-
T8MC8MRT-10K	1/2-14	1/2-14	1.89	0. 40	0.40	0.76	0.75	7/8	10,000	-
T12MC12MRT-10K	3/4-14	3/4-14	1.96	0.51	0.53	0.76	0.75	1-1/8	10,000	-
T16MC16MRT-10K	1 11-1/2	1-11	2.34	0.67	0.67	0.95	0.94	1-3/8	10,000	-

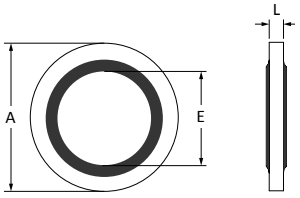
MC-MRS: *Male NPT x Male ISO Straight*





TruFit Part #	P1 Male NPT Thread	P Male ISO Straight Thread	A	E	S	L	H	316 SS Working Pressure
T2MC2MRS	1/8	1/8	1.07	0.16	0.38	0.28	9/16	11,400
T4MC4MRS	1/4	1/4	1.37	0.23	0.57	0.45	3/4	6,000
T6MC6MRS	3/8	3/8	1.37	0.3	0.57	0.45	7/8	6,000
T8MC8MRS	1/2	1/2	1.74	0.48	0.76	0.56	1 1/8	6,000
T12MC12MRS	3/4	3/4	1.89	0.66	0.73	0.56	1 3/8	4,800
T16MC16MRS	1	1	2.27	0.84	0.95	0.73	1 3/4	3,600
Trufit 10K								
T2MC2MRS-10K	1/8-28	1/8	1.09	0.17	0.39	0.28	9/16	10,000
T2MC4MRS-10K	1/4-19	1/8	1.25	0.17	0.39	0.44	3/4	10,000
T4MC2MRS-10K	1/8-28	1/4	1.27	0.17	0.57	0.28	9/16	10,000
T4MC4MRS-10K	1/4-19	1/4	1.45	0.23	0.57	0.44	3/4	10,000
T4MC6MRS-10K	3/8-19	1/4	1.48	0.25	0.57	0.44	7/8	10,000
T4MC8MRS-10K	1/2-14	1/4	1.58	0.23	0.57	0.56	1-1/16	10,000
T6MC4MRS-10K	1/4-19	3/8	1.47	0.23	0.57	0.44	3/4	10,000
T6MC6MRS-10K	3/8-19	3/8	1.48	0.32	0.57	0.44	7/8	10,000
T6MC8MRS-10K	1/2-14	3/8	1.56	0.32	0.57	0.56	1-1/16	10,000
T8MC4MRS-10K	1/4-19	1/2	1.62	0.23	0.76	0.44	7/8	10,000
T8MC6MRS-10K	3/8-19	1/2	1.67	0.32	0.76	0.44	7/8	10,000
T8MC8MRS-10K	1/2-14	1/2	1.45	0.40	0.76	0.56	1-1/16	10,000
T8MC10MRS-10K	5/8-14	1/2	1.75	0.41	0.76	0.56	1-5/16	10,000
T8MC12MRS-10K	3/4-14	1/2	1.83	0.41	0.76	0.62	1-5/16	10,000
T12MC8MRS-10K	1/2-14	3/4	1.82	0.53	0.76	0.56	1-1/8	10,000
T12MC12MRS-10K	3/4-14	3/4	1.93	0.53	0.76	0.62	1-5/16	10,000
T12MC16MRS-10K	1-11	3/4	2.03	0.53	0.76	0.72	1-5/8	10,000
T16MC8MRS-10K	1/2-14	1	2.05	0.47	0.95	0.56	1-3/8	10,000
T16MC12MRS-10K	3/4-14	1	2.13	0.53	0.95	0.62	1-3/8	10,000
T16MC16MRS-10K	1-11	1	2.23	0.67	0.95	0.72	1-5/8	10,000
T16MC20MRS-10K	1-1/4 - 11	1	2.25	0.67	0.95	0.73	2	10,000

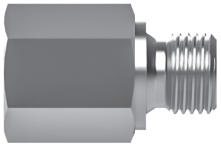
DW-BSPP: *Bonded Washer*

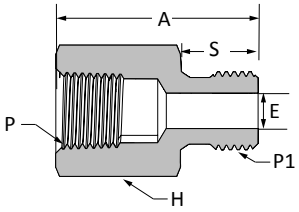


TruFit Part #	A	E	L
4DW-BSPP	0.81	0.54	0.08
6DW-BSPP	0.94	0.68	0.08
8DW-BSPP	1.13	0.85	0.10
12DW-BSPP	1.38	1.06	0.10
16DW-BSPP	1.69	1.33	0.10

** Bonded washer comes standard as a stainless steel washer with FKM inner ring.*

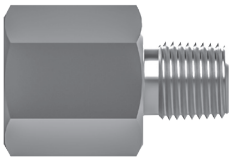
FC-MRS: *Female NPT x Male ISO Straight*

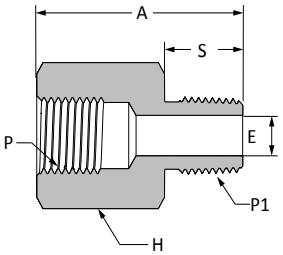




TruFit Part #	P Female NPT Thread	P1 Male ISO Straight Thread	A	E	S	H	316 SS Working Pressure
T2FC2MRS	1/8	1/8	1.33	0.23	0.45	3/4	6,500
T4FC4MRS	1/4	1/4	1.33	0.23	0.45	3/4	6,000
T6FC6MRS	3/8	3/8	1.33	0.30	0.45	7/8	6,000
T8FC8MRS	1/2	1/2	1.70	0.48	0.56	1-1/8	6,000
T12FC12MRS	3/4	3/4	1.82	0.66	0.56	1-3/8	4,200
T16FC16MRS	1	1	1.93	0.84	0.73	1-3/4	3,600

FRS-MC: *Female ISO Straight x Male NPT*





TruFit Part #	P Female ISO Straight Thread	P1 Male NPT Thread	A	E	S	H	316 SS Working Pressure
T4FRS4MC	1/4	1/4	1.42	0.28	0.57	3/4	7,200
T6FRS6MC	3/8	3/8	1.47	0.41	0.57	7/8	7,200
T8FRS8MC	1/2	1/2	1.89	0.53	0.76	1 1/8	6,000
TruFit 10K							
T4FRS4MC-10K	1/4	1/4	1.50	0.24	0.57	13/16	10,000
T6FRS6MC-10K	3/8	3/8	1.54	0.32	0.57	1	10,000
T8FRS8MC-10K	1/2	1/2	1.88	0.40	0.76	1-1/4	10,000

Dimensions are for reference only and are subject to change.

More SSP Products

Tube Fittings

Duolok and Griplok two-ferrule and Unilok® single ferrule tube fittings provide leak-tight installation even when intermixed with Swagelok®, Hoke Gyrolok® and Parker CPI™ fittings.

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The FloLok valve offering includes ball, check, metering, needle, toggle, plug, bleed, and purge valves for pressures up to 10,000 psig.

Tubing

SSP offers straight and coiled seamless 316 stainless steel instrumentation tubing for instrumentation, process and utility applications.

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TruFit and TruFit 10K pipe fittings are available in a wide range of weld, threaded and flared connections.

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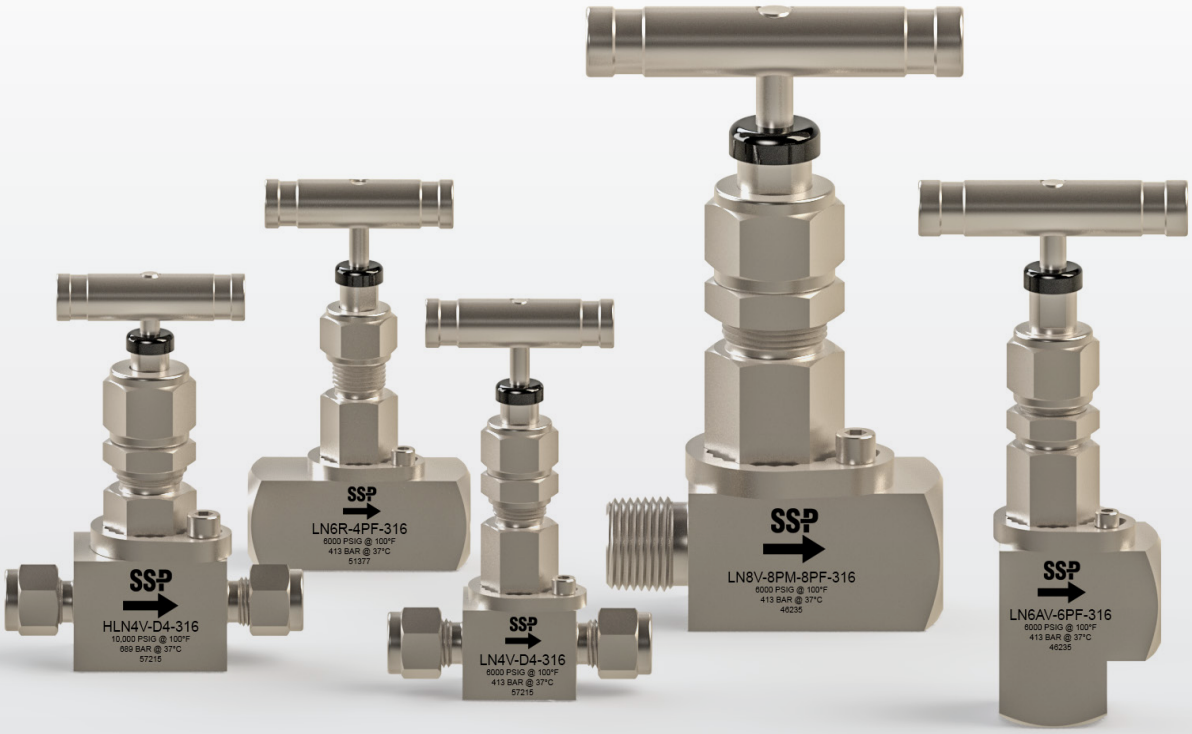
TFPC-22A

Locked Bonnet Needle Valves



LN & HLN Series

- ☑ Working Pressures up to 10,000 psig (689 bar)
- ☑ Temperature Range from -100 to 1200°F (-73 to 648°C)
- ☑ Flow Coefficients up to 2.18
- ☑ Locked bonnet eliminates loosening and accidental disassembly of the bonnet
- ☑ Non-rotating lower stem
- ☑ Live-loaded packing below the stem threads.

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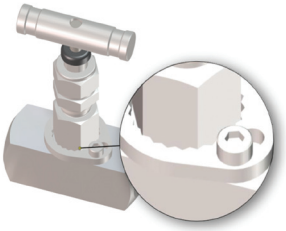
TABLE of CONTENTS

LN Series
Locked Bonnet Needle Valves

A Better Severe Service Needle Valve

LN Series and HLN Series Locked Bonnet Needle Valves offer important advantages over union bonnet and other severe service needle valve designs. LN Series valves are designed for severe service applications having pressures up to 6,000 psig (413 bar) and HLN Series valves are designed for working pressures up to 10,000 psig (689 bar). Both series can be used in applications with high vibration, corrosive media, and frequent cycling, in temperatures from -100 to 1200°F (-73 to 648°C).

LN Series locked bonnet design



Safer Bonnet Design

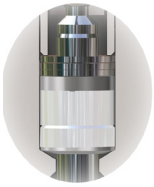
In the locked bonnet design, the bonnet is screwed into the valve body to create a metal to metal seal below the bonnet threads. The bonnet is locked in place with a lock ring, which is secured with a separate screw. This prevents accidental disassembly during packing adjustment, loosening due to vibration, or unscrewing of the bonnet by continuing to rotate the stem after the valve is fully open. The back-seating lower stem allows inline packing adjustments to be made more safely.

Stem pivot is protected above the packing.

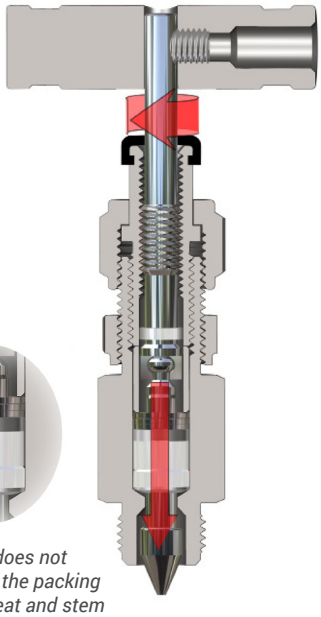
Better Non-Rotating Stem Tip Design

Unlike non-rotating ball stem tips, LN Series valves are designed with a non-rotating lower stem that prevents damage to the seat and stem tip and reduces wear to the packing. The threaded upper stem and stem pivot are located above the packing preventing system media from attacking the threads and washing away thread lubricants and to prevent contamination and corrosion from seizing up the non-rotating tip.

Live-Loaded Chevron Packing below the threads and stem pivot.



Lower stem does not rotate within the packing preventing seat and stem tip damage and reducing packing wear.



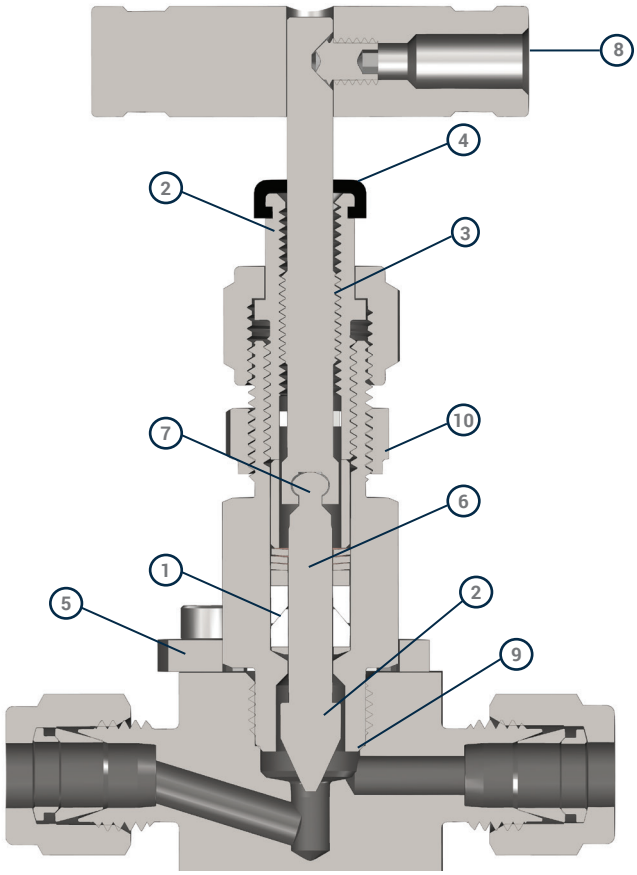
Leak-Tight Reliability and Low Maintenance

LN Series valves are designed with live-loaded packing that provides a dynamic leak-tight stem seal, which compensates for changes in pressure, temperature, and packing wear. Along with the non-rotating stem, live-loaded packing can reduce emissions, packing adjustments and maintenance.

Applications

LN Series valves provide reliable shut off, regulating and metering control in oil & gas exploration and refining, instrumentation, test stands, steam systems, control systems and many other applications where hazardous media, higher temperatures, pressures, and vibration are common.

LN Series Product Design



Meets ASME B31.1 and B31.3 design pressure calculations

1 ***LIVE LOADED CHEVRON PACKING***

- Reduces need for packing adjustments
- Compensates for wear
- Compensates for pressure and temperature changes
- Packing support prevents extrusion of the packing
- Flexible graphite packing is available for high-temperature applications

2 ***BACK SEATING STEM***

- Easy access to packing bolt — nothing to disassemble
- Allows in line packing adjustment in pressurized system
- Isolates the packing when the valve is in the fully open position
- Makes in-line packing adjustment safer

3 ***HARDENED NON-WETTED STEM THREADS***

- Hardened 17-4 PH stainless steel
- High cycle life
- Retain lubricants for easy operation and longer cycle life

4 ***DUST CAP***

- Prevents contamination of the stem threads from the environment
- Colored vent and isolation caps for safety

5 ***BONNET LOCK PLATE***

- Locks bonnet in place to prevent accidental disassembly
- Positive lock is superior to pin-type retainers

6 ***NON ROTATING LOWER STEM***

- Prevents damage to the seat and stem tip for repetitive leak-tight sealing even in severe environments
- Reduces packing maintenance because the stem does not rotate within the packing
- Vee-type, soft-seal shutoff, regulating, and metering stem tips are available
- Chrome-plated, strain-hardened 316 SS

7 ***NON-WETTED, STEM PIVOT INTERLOCK***

- Prevents system media from infiltrating and seizing up the stem joint

8 ***DURABLE STAINLESS STEEL HANDLE***

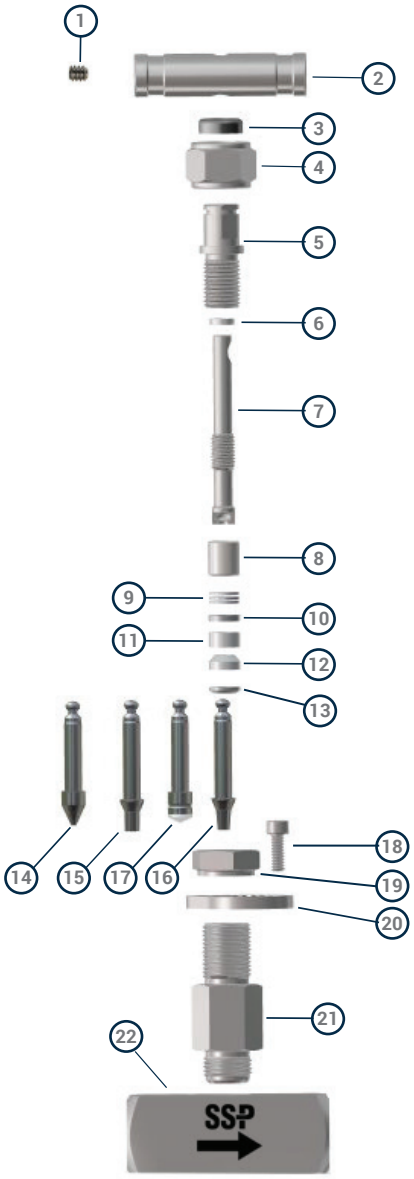
- Large ergonomic handle for easier actuation

9 ***METAL TO METAL BONNET SEAL***

- Higher temperatures and chemical compatibility

Materials of Construction

ID	Component	Body Material		
		316 SS	Alloy 400	Alloy C-276
1	Handle Screw	316 SS/A276		
2	T-Bar Handle	303/A582		
3	Cap	NBR/ D2000		
4	Packing Nut	316 SS/A276		
5	Packing Bolt	316 SS/A276		
6	Stem Guide	PEEK		
7	Upper Stem	17-4 PH/ A564		
8	Packing Spacer	316 SS/A276		
9	Packing Springs	301/A666		
10	Packing Washer	316 SS/A276		
11*	Upper Packing	PTFE/D1710, Flexible Graphite, PEEK[1]		
12*	Lower Packing	PTFE/D1710, Flexible Graphite, PEEK[1]		
13*	Packing Support	316 SS/A276	Alloy 405/B164	Alloy C-276/B574
14*	Vee Stem	Chrome Plated 316 SS/A276	Chrome Plated Alloy 405/B164	Chrome Plated Alloy C-276/B574
15*	Metering Stem			
16*	Regulating Stem			
17*	Soft Seal Stem	316 SS/A276, PCTFE/AMS 3650	Alloy 405/B164, PCTFE/AMS 3650	Alloy C-276/B574 PCTFE/AMS 3650
18	Socket Screw	316 SS/A276		
19	Panel Nut	316 SS/A276		
20	Bonnet Lock	316 SS/A276		
21*	Bonnet	316 SS/A479	Alloy 405/ B164	Alloy C-276/B574
22*	Body	316 SS/A479	Alloy 400/B164	Alloy C-276/B574
	Packing Lubricant	Fluorocarbon-based lubricant		
	Thread Lubricant	Fluorocarbon-based lubricant with Tungsten Disulfide		



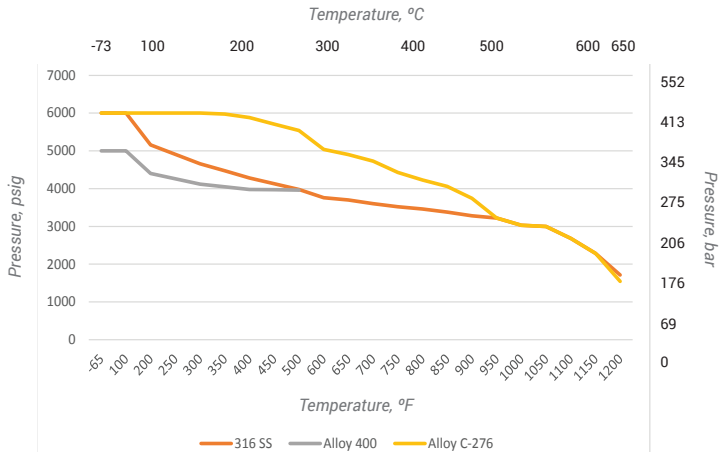
*Wetted components
[1]PEEK Packing is available for LN6/HLN6 Series valves only.

Pressure -Temperature

Data reflects temperature ratings from both process and environmental sources. Pressure ratings are based on valves with graphite packing.

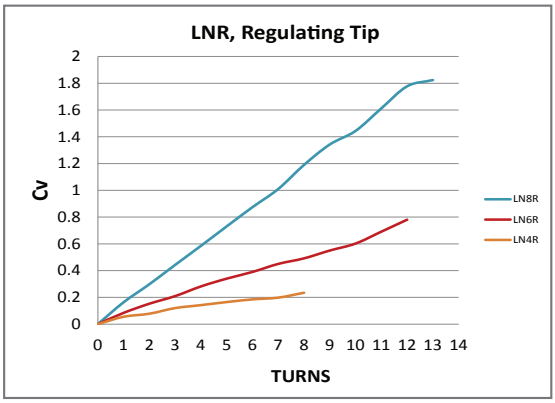
- 600°F (316°C) max. with PEEK* packing
- 450°F (232°C) max. with PTFE packing
- 200°F (93°C) max. with PCTFE stem tip

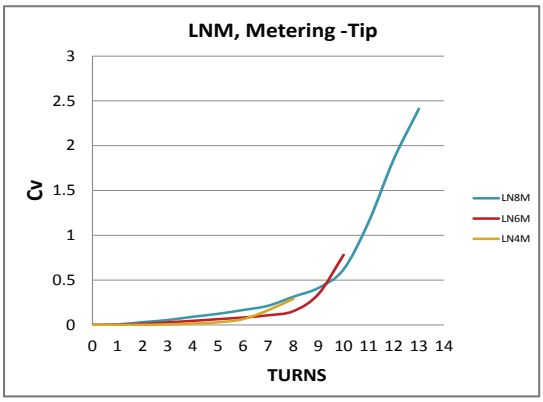
* Available for LN6 valves only.



Flow Data

Valves with vee-tip and soft seal (PCTFE) tip stems are designed to be operated in the fully open or closed position. See the Part Number and Dimensions tables for flow data.





Ordering Information

To order LN Series valves, follow the steps below.

1. *Locate the Basic Part Number & Dimensions table for the type of valve required.*
   LN Straight Pattern (page 06-07), LN Angle Pattern (page 08), HLN Straight Pattern (page 09)
2. *Locate the Basic Part Number with the required end connection type, end connection size and orifice size.*
   Example: ***LN4A-D4***

   Note: *Duolok Tube Fitting end connections are standard. Unilok, and Griplok tube fitting end connections are also available. To order, please see Tube Fitting End Connections on page 10.*
3. *Add the Stem Type Designator after the Valve Size Designator (see page 10). Example LN4A****K****-D4*
4. *If optional flexible graphite or PEEK packing is required, add the Stem Packing Designator (See page 10). Example: LN4A****VG****-D4*
5. *Add the Body Material Designator. (See page 10) Example: LN4AK-D4****-316***
6. *Add designators for other options in alphabetical order. (See page 10) Example: LN4AK-D4-316****-SG***

   NOTE: *The Part Number and Dimensions Tables contain the most popular valve configurations. For other configurations, see the Special Order chart on page 11.*

Basic Part Numbers and Dimensions

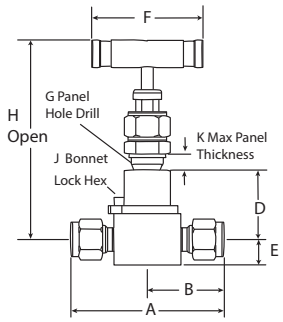
Straight Pattern Needle Valves

End Connection			Basic Part Number	Cv	Orifice in. (mm)	Dimensions[2], in. (mm)								
Type	Inlet Size	Outlet Size				A	B	D	E	F	G	H	J	K
Fractional Tube Fitting[1]	1/4 in.	1/4 in.	LN4-D4	0.34	0.156 (4.0)	2.40 (61.0)	1.20 (30.5)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	3/8 in.	3/8 in.	LN6-D6	0.84	0.250 (6.35)	2.83 (71.9)	1.42 (36.1)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN6-D8	0.85	0.250 (6.35)	3.04 (77.2)	1.52 (38.6)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN8-D8	1.90	0.437 (11.1)	3.92 (99.6)	1.96 (49.8)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
	3/4 in.	3/4 in.	LN8-D12	2.18	0.437 (11.1)	3.92 (99.6)	1.96 (49.8)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
	1 in.	1 in.	LN8-D16	2.18	0.437 (11.1)	4.29 (109.0)	2.15 (54.6)	1.88 (47.8)	0.69 (17.5)	3.50 (89.0)	1 1/32 (20.2)	5.16 (131.1)	3/16 (4.8)	0.32 (8.1)

[1]*Note: Unilok, and Griplok tube fitting end connections are also available. To order, please see Tube Fitting End Connections on page 10. Example: LN4A-****U4***

[2] *Dimensions are for reference only and are subject to change.*

Basic Part Numbers and Dimensions

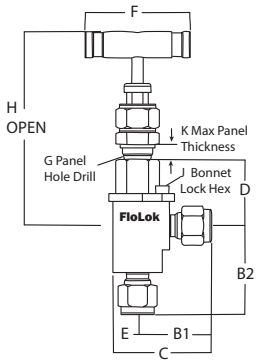


Straight Pattern Needle Valves

End Connection			Basic Part Number	Cv	Orifice in. (mm)	Dimensions[2], in. (mm)								
Type	Inlet Size	Outlet Size				A	B	D	E	F	G	H	J	K
Metric Tube Fitting	6 mm	6 mm	LN4-DM6	0.34	0.156 (4.0)	2.40 (61.0)	1.20 (30.5)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	1 1/32 (20.2)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	8 mm	8 mm	LN4-DM8	0.34	0.156 (4.0)	2.54 (64.5)	1.27 (32.3)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	10 mm	10 mm	LN6-DM10	0.85	0.250 (6.35)	2.86 (72.6)	1.43 (36.3)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	12 mm	12 mm	LN6-DM12	0.85	0.250 (6.35)	3.04 (77.2)	1.52 (38.6)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	12 mm	12 mm	LN8-DM12	1.72	0.437 (11.10)	3.92 (99.6)	1.96 (49.8)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
Female NPT	1/8 in.	1/8 in.	LN4-2PF	0.34	0.156 (4.0)	2.00 (50.8)	1.00 (25.4)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	1/4 in.	1/4 in.	LN4-4PF	0.34	0.156 (4.0)	2.06 (52.3)	1.03 (26.2)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	1/4 in.	1/4 in.	LN6-4PF	0.85	0.250 (6.35)	2.25 (57.2)	1.13 (28.70	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	3/8 in.	3/8 in.	LN6-6PF	0.85	0.250 (6.35)	2.25 (57.2)	1.13 (28.7)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN8-8PF	2.18	0.437 (11.1)	3.12 (79.3)	1.56 (39.6)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
	3/4 in.	3/4 in.	LN8-12PF	2.18	0.437 (11.1)	3.25 (82.6)	1.63 (41.4)	1.91 (48.5)	0.78 (19.8)	3.50 (89.0)	1 1/32 (20.2)	5.34 (135.6)	3/16 (4.8)	0.32 (8.1)
	1 in.	1 in.	LN8-16PF	2.18	0.437 (11.1)	3.62 (92)	1.81 (46)	2.13 (54.1)	1.00 (25.4)	3.50 (88.9)	1 1/32 (20.2)	5.78 (146.8)	3/16 (4.8)	0.32 (8.1)
Male NPT	1/4 in.	1/4 in.	LN4-4PM	0.34	0.156 (4.0)	2.20 (55.9)	1.10 (27.9)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	1/2 in.	1/2 in.	LN8-8PM	2.00	0.437 (11.1)	3.50 (88.9)	1.75 (44.4)	1.82 (46.2)	0.63 (16.0)	3.50 (88.9)	1 1/32 (26.2)	5.03 (127.7)	3/16 (4.8)	0.32 (8.1)
Male to Female NPT	1/4 in.	1/4 in.	LN4-4PM-4PF	0.34	0.156 (4.0)	2.03 (51.6)	1.02 (25.9)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	1/2 in.	1/2 in.	LN8-8PM-8PF	2.00	0.437 (11.1)	3.12 (79.3)	1.56 (39.6)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
	3/4 in.	3/4 in.	LN8-12PM-12PF	2.18	0.437 (11.1)	3.50 (89.0)	1.75 (44.5)	1.91 (48.5)	0.78 (19.8)	3.50 (89.0)	1 1/32 (20.2)	5.34 (135.6)	3/16 (4.8)	0.32 (8.1)
	1 in.	1 in.	LN8-16PM-16PF	2.18	0.437 (11.1)	3.75 (95.3)	1.88 (47.8)	2.13 (54.1)	1.00 (25.4)	3.50 (88.9)	1 1/32 (20.2)	5.78 (146.8)	3/16 (4.8)	0.32 (8.1)
Tube Socket Weld	1/4 in.	1/4 in.	LN4-4SW	0.34	0.156 (4.0)	1.85 (46.9)	0.93 (23.6)	1.09 (27.6)	0.41 (10.4)	1.75 (44.4)	9/16 (14.3)	3.22 (81.7)	7/64 (2.8)	0.24 (6.1)
	3/8 in.	3/8 in.	LN6-6SW	0.85	0.250 (6.35)	2.25 (57.1)	1.13 (28.7)	1.34 (34)	0.5 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN6-8SW	0.86	0.250 (6.35)	3.15 (80)	1.58 (40.1)	1.82 (46.2)	0.63 (16)	3.50 (88.9)	11/16 (17.5)	5.03 (127.7)	5/32 (3.9)	0.32 (8.1)
	1/2 in.	1/2 in.	LN8-8SW	2.00	0.437 (11.1)	3.25 (82.5)	1.63 (41.4)	1.91 (48.5)	0.75 (19)	3.50 (88.9)	1 1/32 (20.2)	5.34 (135.6)	3/16 (4.8)	0.32 (8.1)
	3/4 in.	3/4 in.	LN8-12SW	2.00	0.437 (11.1)	3.12 (79.3)	1.56 (39.6)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
Pipe Socket Weld	1/4 in.	1/4 in.	LN4-4PSW	0.34	0.156 (4.0)	1.82 (46.2)	0.91 (23.1)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	3/8 in.	3/8 in.	LN6-6PSW	0.85	0.250 (6.35)	2.40 (57.2)	1.20 (28.7)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.5)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN8-8PSW	2.00	0.437 (11.1)	3.12 (79.3)	1.56 (39.6)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
	3/4 in.	3/4 in.	LN8-12PSW	2.00	0.437 (11.1)	3.12 (79.3)	1.56 (39.6)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
Male SAE Straight	7/16-20	7/16-20	LN4-4MST	0.34	0.156 (4.0)	2.25 (57.1)	1.13 (28.7)	1.09 (27.6)	0.41 (10.4)	1.75 (44.4)	9/16 (14.3)	3.22 (81.7)	7/64 (2.8)	0.24 (6.1)
	9/16-18	9/16-18	LN6-6MST	0.85	0.250 (6.35)	2.25 (57.1)	1.13 (28.7)	1.34 (34)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	3/4-16	3/4-16	LN8-8MST	2.00	0.437 (11.1)	3.25 (82.5)	1.63 (41.4)	1.82 (46.2)	0.63 (16)	3.50 (88.9)	1 1/32 (26.2)	5.03 (127.7)	3/16 (4.8)	0.32 (8.1)
Female SAE Straight	7/16-20	7/16-20	LN4-4FST	0.34	0.156 (4.0)	2.00 (50.8)	1.00 (25.4)	1.09 (27.6)	0.41 (10.4)	1.75 (44.4)	9/16 (14.3)	3.22 (81.7)	7/64 (2.8)	0.32 (8.1)
	3/4-16	3/4-16	LN8-8FST	2.00	0.437 (11.1)	3.12 (79.2)	1.56 (39.6)	1.82 (46.2)	0.63 (16)	3.50 (88.9)	1 1/32 (26.2)	5.03 (127.7)	3/16 (4.8)	0.32 (8.1)

Basic Part Numbers and Dimensions

Angle Pattern Needle Valves



End Connection			Basic Part Number	Cv	Orifice in. (mm)	Dimensions[2] in. (mm)									
Type	Inlet Size	Outlet Size				B1	B2	C	D	E	F	G	H	J	K
Fractional Tube Fitting[1]	1/4 in.	1/4 in.	LN4A-D4	0.34	0.156 (4.0)	1.16 (29.5)	1.48 (37.6)	1.57 (39.9)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	3/8 in.	3/8 in.	LN6A-D6	0.85	0.250 (6.35)	1.44 (36.6)	1.66 (42.2)	1.94 (49.3)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN6A-D8	0.85	0.250 (6.35)	1.55 (39.4)	1.65 (41.9)	2.05 (52.5)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN8A-D8	1.90	0.437 (11.1)	1.81 (46)	2.08 (52.8)	2.44 (62.0)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
Metric Tube Fitting	6 mm	6 mm	LN4A-DM6	0.34	0.156 (4.0)	1.16 (29.5)	1.48 (37.6)	1.57 (39.9)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	8 mm	8 mm	LN4A-DM8	0.34	0.156 (4.0)	1.28 (32.5)	1.50 (38.1)	1.69 (42.9)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	10 mm	10 mm	LN6A-DM10	0.85	0.250 (6.35)	1.46 (37)	1.55 (39.4)	1.96 (49.8)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	12 mm	12 mm	LN6A-DM12	0.85	0.250 (6.35)	1.56 (39.6)	1.65 (41.9)	1.90 (48.3)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	12 mm	12 mm	LN8A-DM12	1.72	0.437 (11.1)	1.81 (46)	2.08 (52.8)	2.37 (60.2)	1.82 (46.2)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
Female NPT	1/8 in.	1/8 in.	LN4A-2PF	0.34	0.156 (4.0)	0.89 (22.6)	1.00 (25.4)	1.30 (33.0)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	1/4 in.	1/4 in.	LN4A-4PF	0.34	0.156 (4.0)	0.89 (22.6)	1.00 (25.4)	1.30 (33.0)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	1/4 in.	1/4 in.	LN6A-4PF	0.85	0.250 (6.35)	1.00 (25.4)	1.12 (28.5)	1.50 (38.1)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	3/8 in.	3/8 in.	LN6A-6PF	0.85	0.250 (6.35)	1.12 (28.5)	1.12 (28.5)	1.50 (38.1)	1.62 (41.1)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN8A-8PF	2.18	0.437 (11.1)	1.56 (39.6)	1.56 (39.6)	2.00 (50.8)	2.19 (55,6)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
Male NPT	1/4 in.	1/4 in.	LN4A-4PM	0.34	0.156 (4.0)	1.00 (25.4)	1.00 (25.4)	1.41 (35.8)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
Male to Female NPT	1/4 in.	1/4 in.	LN4A-4PM-4PF	0.34	0.156 (4.0)	0.89 (22.6)	1.00 (25.4)	1.30 (33.0)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.15 (3.8)
	1/2 in.	1/2 in.	LN8A-8PM-8PF	2.18	0.437 (11.1)	1.56 (39.6)	1.56 (39.6)	2.00 (50.8)	2.19 (55,6)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.25 (6.4)
Tube Socket Weld	1/4 in.	1/4 in.	LN4A-4SW	0.34	0.156 (4.0)	0.88 (22.4)	1.19 (30.2)	1.29 (32.8)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.8)	7/64 (2.8)	0.24 (6.1)
	3/8 in.	3/8 in.	LN6A-6SW	0.86	0.250 (6.35)	1.00 (25.4)	1.25 (31.6)	1.50 (38.1)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN6A-8SW	0.85	0.437 (11.1)	1.00 (25.4)	1.25 (31.6)	1.50 (38.1)	1.34 (34.0)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN8A-8SW	2.00	0.437 (11.1)	1.56 (39.6)	1.69 (42.9)	2.00 (50.8)	2.19 (55,6)	0.63 (15.9)	3.50 (89.0)	1 1/32 (20.2)	5.03 (127.8)	3/16 (4.8)	0.32 (8.1)
Pipe Socket Weld	1/4 in.	1/4 in.	LN4A-4PSW	0.34	0.156 (4.0)	0.88 (33.4)	1.19 (30.2)	1.29 (32.8)	1.09 (27.7)	0.41 (10.4)	1.75 (44.5)	9/16 (14.3)	3.22 (81.7)	7/64 (2.8)	0.24 (6.1)
	3/8 in.	3/8 in.	LN6A-6PSW	0.85	0.250 (6.35)	1.20 (30.5)	1.25 (31.8)	1.70 (43.2)	1.34 (34.4)	0.50 (12.7)	2.50 (63.5)	11/16 (17.4)	3.93 (99.8)	5/32 (3.9)	0.28 (7.1)
	1/2 in.	1/2 in.	LN8A-8PSW	2.00	0.437 (11.1)	1.50 (38.1)	1.69 (42.9)	2.13 (54.1)	1.82 (19.0)	0.63 (88.9)	3.50 (89.0)	1 1/32 (20.2)	5.34 (135.6)	3/16 (4.8)	0.32 (8.1)

*[1]Note: Unilok, and Griplok tube fitting end connections are also available. To order, please see Tube Fitting End Connections on page 10. Example: LN4A-**U4***

[2] Dimensions are for reference only and are subject to change.

HLN Series
High Pressure Needle Valves

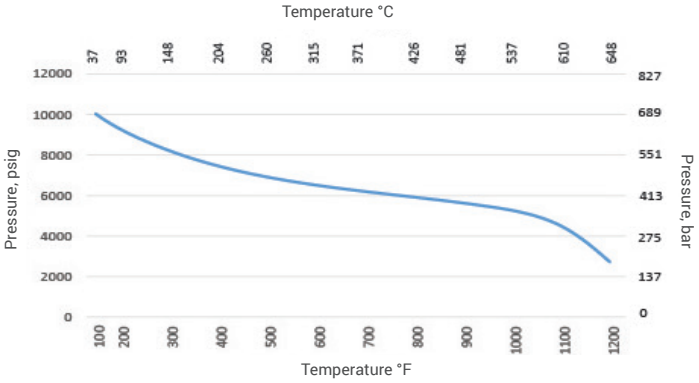
HLN Series valves are designed for applications with working pressures up to 10,000 psig (689 bar) and temperatures from -100 to 1200° F (-73 to 648° C).

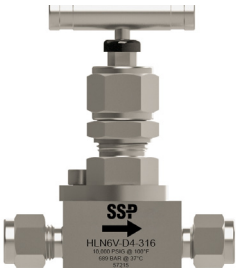
HLN Pressure-Temperature

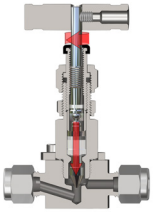
Data reflect temperature ratings from both process and environmental sources. Pressure ratings are based on valves with 316 SS bodies and flexible graphite packing.

- 600°F (316°C) max. with PEEK* packing
- 450°F (232°C) max. with PTFE packing
- 200°F (93° C) max. with PCTFE stem tip

* Available for HLN6 valves only.







Basic Part Numbers and Dimensions

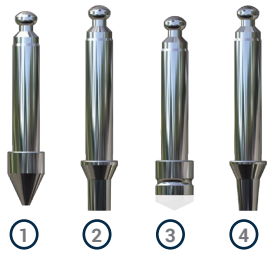
End Connection			Basic Part Number[1]	Cv	Orifice in. (mm)	Dimensions[2] in. (mm)								
Type	Inlet Size	Outlet Size				A	B	D	E	F	G	H	J	K
Fractional Tube Fitting[1]	1/4 in.	1/4 in.	HLN4-D4	0.34	0.156 (4.0)	2.82 (71.6)	1.41 (35.8)	1.09 (27.7)	0.50 (12.7)	1.75 (44.5)	11/16	3.17 (80.5)	5/32 (3.9)	0.24 (6.1)
Female NPT	1/8 in.	1/8 in.	HLN4-2PF	0.34	0.156 (4.0)	2.25 (57.2)	1.13 (28.7)	1.09 (27.7)	0.50 (12.7)	1.75 (44.5)	11/16	3.17 (80.5)	5/32 (3.9)	0.24 (6.1)
	1/4 in.	1/4 in.	HLN4-4PF	0.34	0.156 (4.0)	2.25 (57.2)	1.13 (28.7)	1.09 (27.7)	0.50 (12.7)	1.75 (44.5)	11/16	3.17 (80.5)	5/32 (3.9)	0.24 (6.1)
	1/4 in.	1/4 in.	HLN6-4PF	0.85	0.250 (6.35)	3.12 (57.2)	1.56 (39.6)	1.34 (34.0)	0.63 (16.0)	2.50 (63.5)	1 1/32	3.79 (96.0)	3/16 (4.8)	0.28 (7.1)
	1/2 in.	1/2 in.	HLN6-8PF	0.85	0.250 (6.35)	3.12 (57.2)	1.56 (39.6)	1.34 (34.0)	0.63 (16.0)	2.50 (63.5)	1 1/32	3.79 (96.0)	3/16 (4.8)	0.28 (7.1)
Male NPT	1/4 in.	1/4 in.	HLN4-4PM	0.34	0.156 (4.0)	2.50 (63.5)	1.25 (31.7)	1.09 (27.7)	0.50 (12.7)	1.75 (44.5)	11/16	3.17 (80.5)	5/32 (3.9)	0.24 (6.1)
	1/2 in.	1/2 in.	HLN6-8PM	0.85	0.250 (6.35)	3.50 (88.9)	1.75 (44.4)	1.34 (34.0)	0.63 (16.0)	2.50 (63.5)	1 1/32	3.79 (96.0)	3/16 (4.8)	0.28 (7.1)
Male to Female NPT	1/4 in.	1/4 in.	HLN4-4PM-4PF	0.34	0.156 (4.0)	2.50 (63.5)	1.25 (31.7)	1.09 (27.7)	0.50 (12.7)	1.75 (44.5)	11/16	3.17 (80.5)	5/32 (3.9)	0.24 (6.1)
	1/2 in.	1/2 in.	HLN6-8PM-8PF	0.85	0.25 (11.1)	3.50 (88.9)	1.75 (44.4)	1.34 (34.0)	0.63 (16.0)	2.50 (63.5)	1 1/32	3.79 (96.0)	3/16 (4.8)	0.28 (7.1)
Tube Socket Weld	1/4 in.	1/4 in.	HLN4-4SW	0.34	0.156 (4.0)	2.25 (57.2)	1.13 (28.7)	1.09 (27.7)	0.50 (12.7)	1.75 (44.5)	11/16	3.17 (80.5)	5/32 (3.9)	0.24 (6.1)
Pipe Socket Weld	1/4 in.	1/4 in.	HLN4-4PSW	0.34	0.156 (4.0)	2.25 (57.1)	1.13 (28.7)	1.09 (27.6)	0.5 (12.7)	1.75 (44.5)	11/16	3.17 (80.5)	5/32 (3.9)	0.24 (6.1)

[1]*Note: Unilok, and Griplok tube fitting end connections are also available. To order, please see Tube Fitting End Connections on page 10. Example: LN4A-U4*
[2] *Dimensions are for reference only and are subject to change.*

Options & Accessories

Stem Type

Select the stem type designator from the table below then add it to the part number. *Example: LN4**V**-D4-316*



Stem Type	Designator
1. V-Type Shutoff Stem	V
2. Metering Stem	M
3. Soft Seal Stem (PCTFE)	K
4. Regulating Stem	R

Stem Packing

PTFE packing is standard on LN Series valves. To order high-temperature graphite or PEEK packing, add the designator from the table below after the stem type designator in the basic part number. **Note:** PEEK packing is available on LN6 and HLN6 valves only. *Example: LN**6**R**P**-D8-316*

Packing Material	Designator
Graphite	G
PEEK*	P

* Available for LN6 and HLN6 valves only.

Tube Fitting End Connections

SSP offers three tube fitting designs. Duolok tube fittings are standard. To select a different tube end, select the designator from the table below, then substitute it for the "D" in the part number. *Example: LN4R-**U**4-316 for Unilok tube fitting end connections.*

Design	Description	Designator
Duolok	2-Ferrule	D
Unilok	1-Ferrule	U
Griplok	2-Ferrule	G

Body Material

Select the valve body material required then add the designator to the valve basic part number. *Example: LN4R-4PF-**M***

Material	Designator
316 Stainless Steel	-316
Alloy 400	-M
Alloy C-276	-HC

Sour Gas Service

Selecting valves for sour gas applications requires the consideration of several factors including the temperature, pH, partial pressure of H_2S, and whether the application is above or below ground. SSP offers four configurations to meet the requirements in ANSI/NACE MR0175/ISO 15156-3 and NACE MR0103/ISO 19745. To order valves for your sour gas applications add the designator below to the part number. *Example: LN6V-8PM-8PF-316-**SG2***

***Note:** HLN Series valves are only available with SG1 and SG2 materials.*

Designator	Wetted Part[1]	Non-Wetted	Body
SG1	Annealed 316 SS except body[2]	316 SS	316 SS
SG2	Annealed 316 SS	316 SS	316 SS
SG3	Alloy 400/UNS S20910	316 SS	Alloy 400
SG4	Alloy 400/UNS S20910	Alloy 400	Alloy 400

[1]Springs or other components may require other materials for functionality.

[2]Compression fittings and valve bodies with compression fitting ports are exempt from lower hardness requirements per ANSI/NACE MR0175/ISO 15156 and NACE MR0103/ISO 19745.

Special Cleaning

LN Series valves are available cleaned in compliance with ASTM G93 Level C and CGA G-4.1, *Cleaning Methods and Cleanliness Levels for Material and Equipment Used in Oxygen-Enriched Environments*. To specify, add -XP98 to the part number. *Example: LN6V-D6-316-**XP98***

For more information please contact your local SSP distributor or SSP Customer Service.

Rebuild Kits

LN Series rebuild kits include a complete bonnet assembly, lubrication and instructions. To order select the valve size, stem type, kit, packing and body material designators from the table below. *Example: **LN4R-RK-TFE-316***

Valve Size*	Stem Type		Kit	Packing		Body Material	
LN4	Vee	V	-RK	PTFE	-TFE	316 SS	-316
LN6	Soft	K		Graphite	-G	Alloy 400	-M
LN8	Regulating	R		PEEK	-PK	Alloy C-276	-HC
	Metering	M					

*For HLN Series valves add "H" before the valve size.

Gauge and Block & Bleed Valves

SSP offers locked bonnet needle gauge valves, rising plug gauge valves and block & bleed valves in 316 SS, Alloy 400 and Alloy C-276. See the Gauge and Block & Bleed Valves Catalog or mySSP.com for more information.

LN Series Special Orders

The Basic Part Numbers and Dimensions tables contain only the most popular valve configurations; many more are available. If the required valve configuration is not in the Basic Part Numbers and Dimensions tables, use the chart below to build part numbers for quotation purposes.

(basic part number) (options)

A	B	C	D	E	F	G	H
LN4	A	R	G	-4PM	-4PF	-316	-XP98

A SERIES / SIZE

LN4	0.156 Orifice
LN6	0.250 Orifice
LN8	0.437 Orifice
HLN4	0.156 Orifice
HLN6	0.250 Orifice

B PATTERN

Blank	Straight
A	Angle

E + F INLET[1] + OUTLET[1]

Type:		Fractional Sizes:		Metric Sizes:	
D	Duolok® Tube Fitting	2	1/8 in.	M6	6 mm
U	Unilok® Tube Fitting	4	1/4 in.	M8	8 mm
G	Griplok® Tube Fitting	6	3/8 in.	M10	10 mm
PF	Female NPT	8	1/2 in.	M12	12 mm
PM	Male NPT	12	3/4 in.		
SW	Tube Socket Weld	16	1 in.		
PSW	Pipe Socket Weld				
MST	Male SAE Straight				
FST	Female SAE Straight				

C STEM TYPE

V	Vee 316 SS
M	Metering 316 SS
K	Soft Seal, PCTFE
R	Regulating 316 SS

D PACKING MATERIAL

Blank	PTFE
G	Flexible Graphite
P	PEEK[3]

G BODY MATERIAL

-316	316 SS
-M	Alloy 400
-HC	Alloy C-276

H OPTIONS[2]

SPECIAL CLEANING

-XP98	Oxygen compatible lubricant, per ASTM G93, Level C and CGA G-4.1

SOUR GAS

-SG	ISO 15156 (NACE MR01-75)

See page 10 for more information

[1] *Tube fitting end connection part numbers are formatted Type followed by Size. Example:* ***D6***
Pipe ends are formatted Size follow by Type. Example: ***6PF***
*If both ends are the same, use only one end connection designator. Example: LN8V-****D8****-316*

[2] *Add options designators to the end of the Base Part Number in alphabetical order.*

[3] Available for LN6 and HLN6 valves only.

Testing

All LN Series valves are factory tested with Nitrogen to 1000 psig (69 bar) at 70°F (20°C). ***Note: Packing adjustments may be required for applications with higher pressures and/or higher or lower process or environmental temperatures.***

Warranty

SSP valves are backed by the SSP Lifetime Limited Warranty. This warranty is available from your local distributor or at www.mySSP.com.

Important Information

IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE PERSONAL INJURY AND PROPERTY DAMAGE. It is the sole responsibility of the system designers and users to properly select and use products for their specific applications. This document has been provided to users with technical expertise as a reference for further investigation to determine specific product needs relative to their design requirements.

Packing must be adjusted for application with working pressure higher than 1000 psig (69 bar) or if the valves have been exposed to high or low temperatures prior to installation. Instructions for packing adjustments are included with each valve. Valves that have not been actuated for extended periods of time may require greater actuation torque.

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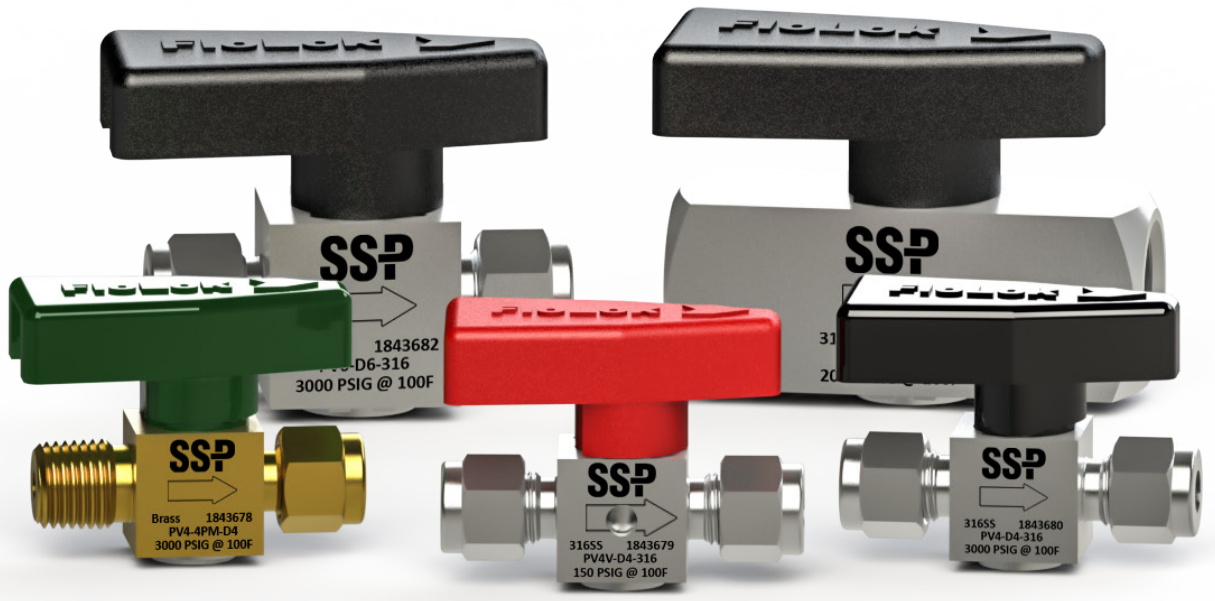
Plug Valves



PV Series

- ☑ Working Pressure: Up to 3,000 psig (200 bar)
- ☑ Temperature Range: -10 to 400°F (-23 to 204°C)
- ☑ Flow Coefficient: Up to 6.4
- ☑ End Connections: 1/8 to 1/2 in. (6 to 12mm)
- ☑ Wide variety of end connection types and sizes

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At SSP, we are proud to be an American manufacturing success story.

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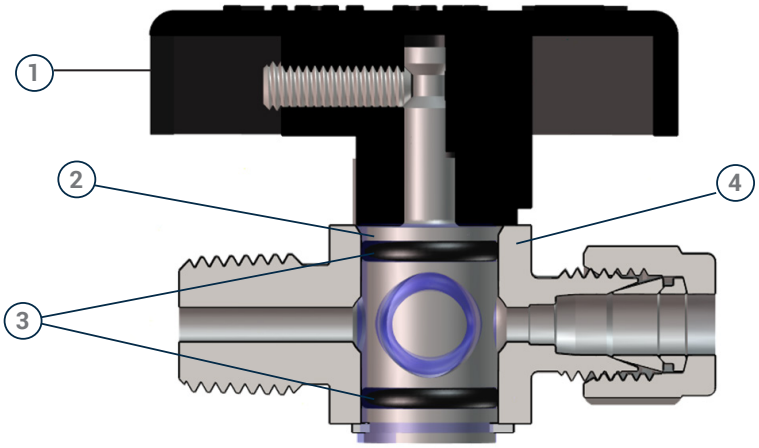
PV Series Plug Valves

PV Series quarter-turn plug valves are used for isolation and flow control in a wide range of applications including: air systems, lube system controls, laboratories, instrument gas systems.

Design



1 ***1/4-TURN ACTUATION***
- 1/4-turn, low-torque actuation
- Directional handle indicates the direction of the flow

2 ***PTFE-COATED PLUG***
- Reduces potential for galling
- Low maintenance

3 ***O-RING SEAL TO ATMOSPHERE***
- Choice of O-ring materials
- Easy maintenance

4 ***ONE-PIECE BODY***
- Compact size for tight spaces and close mounting
- Lightweight
- Fewer leak points

STRAIGHT FLOW PATH
- Forward-flow throttling
- High flow

VARIETY OF END CONNECTIONS
- Fractional Duolok®, Unilok® and Griplok® tube ends
- Metric Duolok® tube ends
- TruFit® NPT and ISO/BSPT pipe ends

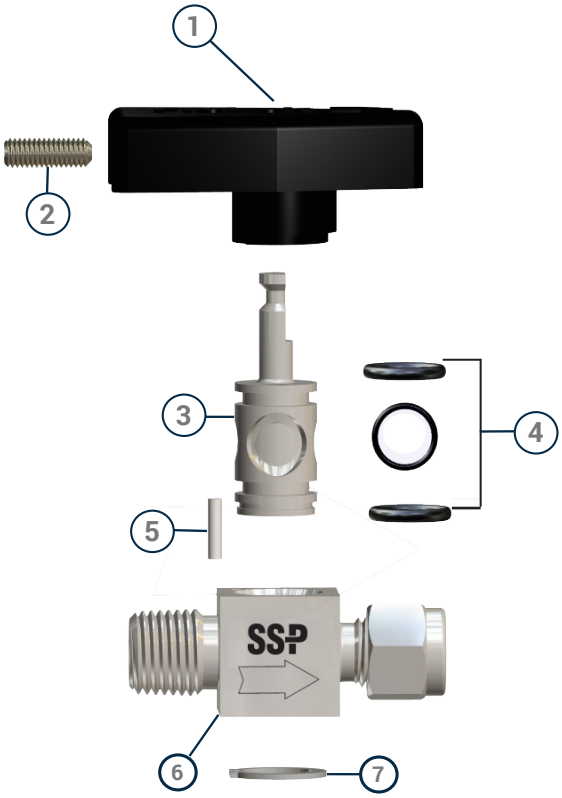
100% FACTORY TESTED

Technical Information

Materials of Construction

ID	Component	316 SS	Brass
1	Handle	Nylon	
2	Set Screw	316 SS	
3	Plug*	316 SS/A479	Brass/B453
4	O-rings*	PTFE-Coated Fluorocarbon FKM	
5	Pin	420 SS	
6	Body*	316 SS/A479	Brass/B453
7	Snap Ring	PH 15-7 SS	
	Lubricant	Silicone-based	

*Wetted Components



Temperature - Pressure

Series	PV4, PV6	PV4	PV6
Material	**316 SS**	**Brass**	
Temperature °F (°C)	**Working Pressure, psig (bar)[1, 2]**		
-10 to 100 (-23 to 37)	3000 (206)	3000 (206)	2000 (137)
150 (65)	3000 (206)	2500 (172)	2000 (137)
200 (93)	3000 (206)	2000 (137)	2000 (137)
250 (121)	2000 (137)	1500 (103)	1500 (103)
300 (148)	1000 (68.9)	1000 (68.9)	1000 (68.9)
350 (176)	1000 (68.9)	1000 (68.9)	1000 (68.9)
400 (204)	1000 (68.9)	400 (27.5)	400 (27.5)

[1]Based on PTFE coated Fluorocarbon FKM O-rings.
[2]Differential pressure is limited to 150 psig (10.3 bar) maximum if reverse flow occurs. Reverse-flow throttling may damage O-ring.

Ordering Information

Ordering Instructions

1. Select the basic ordering number from the Part Numbers and Dimensions table based on the end connections and orifice size for the valve. *Example:* ***PV4-4PM-D4***

   Basic part numbers for valves with tube fitting end connections specify the Duolok two-ferrule design. To order Unilok single ferrule tube ends change the D to a U. *Example:* ***PV4-4PM-U4***

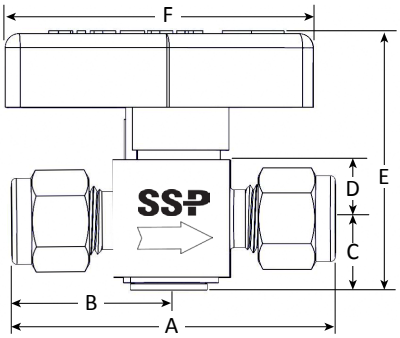
   To order Griplok dual-ferrule tube ends change the D to a G. *Example:* ***PV4-4PM-G4***

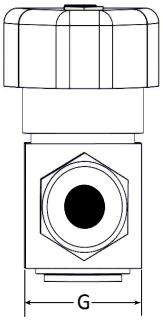
2. If the valve requires downstream venting to atmosphere, add a V to the base part number. *Example:* ***PV4V-4PM-D4***

3. Select the body material, then add it to the base part number. *Example:* ***PV4-4PM-D4-316***

4. Add Options and Accessories to the end of the part number in alphabetical order. See the Options and Accessories section for more information. *Example:* ***PV4-4PM-D4-316-LDSS***

Part Numbers and Dimensions





End Connection		Basic Part Number	CV	Dimensions in. (mm)[3, 4]							
Inlet/Outlet	Size			Orifice	A	B	C	D	E	F	G
Fractional Tube Fitting[1]	1/8 in.	PV4-D2	0.10	0.093 (2.3)	1.99 (50.5)	0.99 (25.1)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	1/4 in.	PV4-D4	1.6	0.172 (4.4)	2.17 (55.1)	1.08 (27.4)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	3/8 in.	PV4-D6	1.1	0.172 (4.4)	2.29 (58.2)	1.14 (29.0)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	3/8 in.	PV6-D6	6.4	0.283 (7.2)	2.66 (67.6)	1.33 (33.8)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
	1/2 in	PV6-D8	4.4	0.283 (7.2)	2.88 (73.2)	1.44 (36.6)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
Duolok Metric Tube Fittings[2]	6 mm	PV4-DM6	1.6	0.172 (4.4)	2.17 (55.1)	1.08 (27.4)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	8 mm	PV6-DM8	6.4	0.283 (7.2)	2.60 (66.0)	1.30 (33.0)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
	10 mm	PV6-DM10	6.4	0.283 (7.2)	2.68 (68.1)	1.34 (34.0)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
	12 mm	PV6-DM12	4.8	0.283 (7.2)	2.88 (73.2)	1.44 (36.6)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
Female NPT	1/8 in.	PV4-2PF	1.2	0.172 (4.4)	1.78 (45.2)	0.89 (22.6)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	1/4 in.	PV4-4PF	0.9	0.172 (4.4)	2.09 (53.1)	1.05 26.7)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	1/4 in.	PV6-4PF	4.3	0.283 (7.2)	2.38 (60.5)	1.19 (30.2)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
	1/2 in.	PV6-8PF	2.7	0.283 (7.2)	2.88 (73.2)	1.44 (36.6)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
Male NPT	1/8 in.	PV4-2PM	1.0	0.172 (4.4)	1.53 (38.9)	0.76 (19.3)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	1/4 in.	PV4-4PM	1.0	0.172 (4.4)	1.90 (48.3)	0.95 (24.1)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	1/2 in.	PV6-8PM	2.4	0.283 (7.2)	2.64 (67.1)	1.32 (33.5)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)
Male NPT to Fractional Tube Fitting	1/4 in.	PV4-4PM-D4	0.9	0.172 (4.4)	2.03 (51.2)	0.95 (24.1)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
Male to Female NPT	1/4 in.	PV4-4PM-4PF	1.0	0.172 (4.4)	2.00 (50.8)	0.95 (24.1)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
Female ISO Tapered	1/4 in.	PV4-4FRT	0.9	0.172 (4.4)	2.21 (56.1)	1.11 (28.2)	0.47 (11.9)	0.38 (9.7)	1.68 (42.7)	2.00 (50.8)	0.75 (19.1)
	1/2 in.	PV6-8FRT	2.7	0.283 (7.2)	3.14 (79.8)	1.57 (39.9)	0.67 (17.0)	0.56 (14.2)	2.20 (55.9)	2.63 (66.8)	1.12 (28.4)

[1] The Basic Ordering Numbers for tube fitting end connections specify Duolok end connections. For Unilok and Griplok end connections, see the Tube Fitting End ***Connection*** *options on page 6.*

[2] Only Duolok tube ends are available in metric sizes.

[3] Dimensions are subject to change,

[4] Dimensions shown with tube fitting nuts finger-tight.

Options & Accessories

Tube Fitting End Connections

SSP provides three tube fitting designs for all PV Series valves. Use the designators below to indicate the required design. For more information about SSP tube fitting end connections see our tube fitting catalogs.
*Example: PV4-**U**4-316 for Unilok tube end connections.*

Design	Description	Designator
Duolok	2-Ferrule	D
Unilok	1-Ferrule	U
Griplok	2-Ferrule	G

Body Material

Select the valve body material required and add the designator to the valve basic part number.
*Example: PV4-D4-**B***

Body Material	Designator
316 Stainless Steel	-316
Brass	-B

O-Ring Material

PTFE coated Fluorocarbon FKM is the standard O-ring material for all PV Series valves.

Other O-Ring materials are available. Please contact SSP for additional information.

Handle Colors

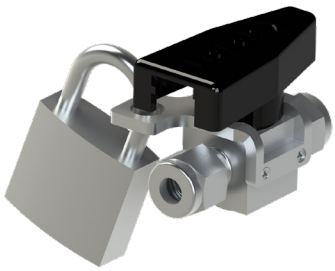
Green nylon handles are standard on non-vented valves. Red handles are standard on vented valves. For standard colored handles do not use a color designator. To select a different color handle, add the designator from the table below.
*Example: PV4-D4-316-**RD***

Handle color	Designator
Black	-BK
Blue	-BL
Red	-RD

Locking Hardware

PV Series locking devices:

- Meet OSHA Lockout/Tag Out Standard 29 CFR Part 1910.147
- Use padlock with shackle diameters from 1/4 to 5/16 in. (6.4 to 8mm)
- Available factory installed or for field installation



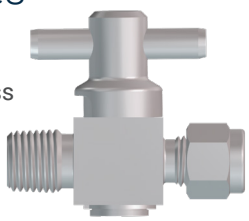
Factory installed locking hardware can be added to any size valve by adding -LDSS to the part number.
*Example: PV6-8PF-316-**LDSS***

To order locking hardware kits for field installation, select the part number from the table below. Kits include locking device plate, spacer, installation instructions and all necessary hardware.

Series	Part Number
316 SS	
PV4	PV4-LDSSK
PV6	PV6-LDSSK

Stainless Steel Handles

PV Series valves are available with a stainless steel T-bar handle and plug for valves with both brass and stainless steel valve bodies.



To order PV Series Plug Valves with stainless steel handles, add -BH1 to the part number. *Example: PV4-D6-316-**BH1***

Special Cleaning

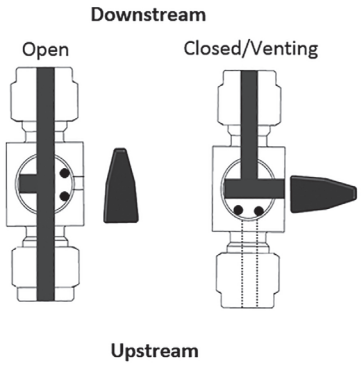
ASTM G93, Level C and CGA G-4.1 compliant cleaning is available for valves using oxygen compatible lubricant.
*To specify special cleaning, add -XP98 to the basic ordering number. Example: PV4-D4-316-**XP98***

Vented Valves

PV Series plug valves are available with a vented stem and ported body to allow downstream pressure to vent to the atmosphere when the valve is in the closed position.

- Vented PV Series valves come standard with a red handle.
- The pressure rating for vented plug valves is 150 psig (10.3 bar).

To order PV Series vented plug valves, add a V to the valve size designator in the basic part number.
*Examples: PV4**V**-D4-316*



Special Orders

The Part Numbers and Dimensions table (page 5) contains only the most popular valve configurations; many more are available. If the required valve configuration is not in the Part Numbers and Dimensions tables, use the chart below to build part numbers for quotation purposes.

Basic Part Number					Options
A	B	C	D	E	F
PV4	V	-4PM	-D4	- 316	- GR- LD

A Orifice/Valve Size

PV4	*0.172*
PV6	*0.283*

B Vented Valves

Blank	*No Vent*
V	*Downstream Vent*

E Body Material

-316	*316 SS*
-B	*Brass*

C Inlet **D Outlet[1]**

Types	
D	*Duolok Tube Fitting*
U	*Unilok Tube Fitting*
G	*Griplok Tube Fitting*
DM	*Duolok Metric*
PF	*Female NPT*
PM	*Male NPT*
FRT	*Female ISO Tapered*

Fractional Sizes	
2	*1/8 in*
4	*1/4 in*
6	*3/8 in*
8	*1/2 in*
Metric Sizes	
6	*6 mm*
8	*8 mm*
10	*10 mm*
12	*12 mm*

F Options[2]

-LDSS	*Locking Device Stainless Steel*
-XP98	*Clean per ASTM G93 Level C and CGA G-4.1*

Handles	
Blank	*Green[3]*
-BK	*Black*
-BL	*Blue*
-RD	*Red[3]*
-BH1	*Stainless Steel*

[1]Tube fitting end connection part numbers are formatted Type followed by Size. Example: D6
Pipe ends are formatted Size followed by Type. Example: 6PF. If the inlet and outlet are the same use only one designator
*[2]Options are added to the end of the part number in alphabetical order. Example: PV6-D4-316-**BL-XP98***
[3]Green handles are standard on all non-vented valves. Red handles are standard on vented valves.

⚠ Important Information

IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE PERSONAL INJURY AND PROPERTY DAMAGE. It is the sole responsibility of the system designers and users to properly select and use products for their specific applications. This document has been provided to users with technical expertise as a reference for further investigation to determine specific product needs relative to their design requirements.

Testing

All PV Series valves are factory tested with Nitrogen to 1000 psig (69 bar) at 70°F (20°C).

Warranty

SSP valves are backed by the SSP Limited Life Time Warranty. This warranty is available from your local distributor or at www.mySSP.com.

Founded 1926

Privately owned, third generation business

Modern single-site vertically integrated manufacturing facility

DFARS-compliant raw material

ISO 9001 quality management system

Lifetime Limited Warranty

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PVPC-22A